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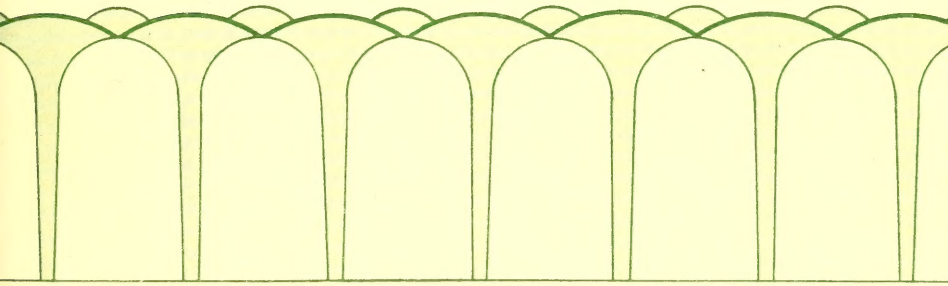
THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

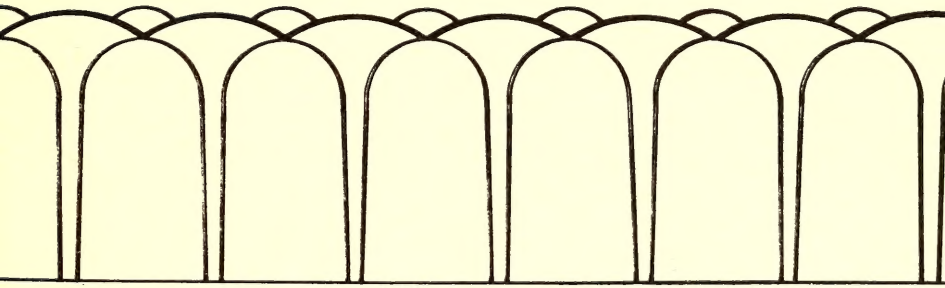


CATALOGUE
1965-1966

July, 1965 Number 1

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

(Charlotte College before July 1, 1965)



CATALOGUE 1965-1966

Mailing Address:

The University of North Carolina at Charlotte
P. O. Box 20428
Charlotte, North Carolina 28202

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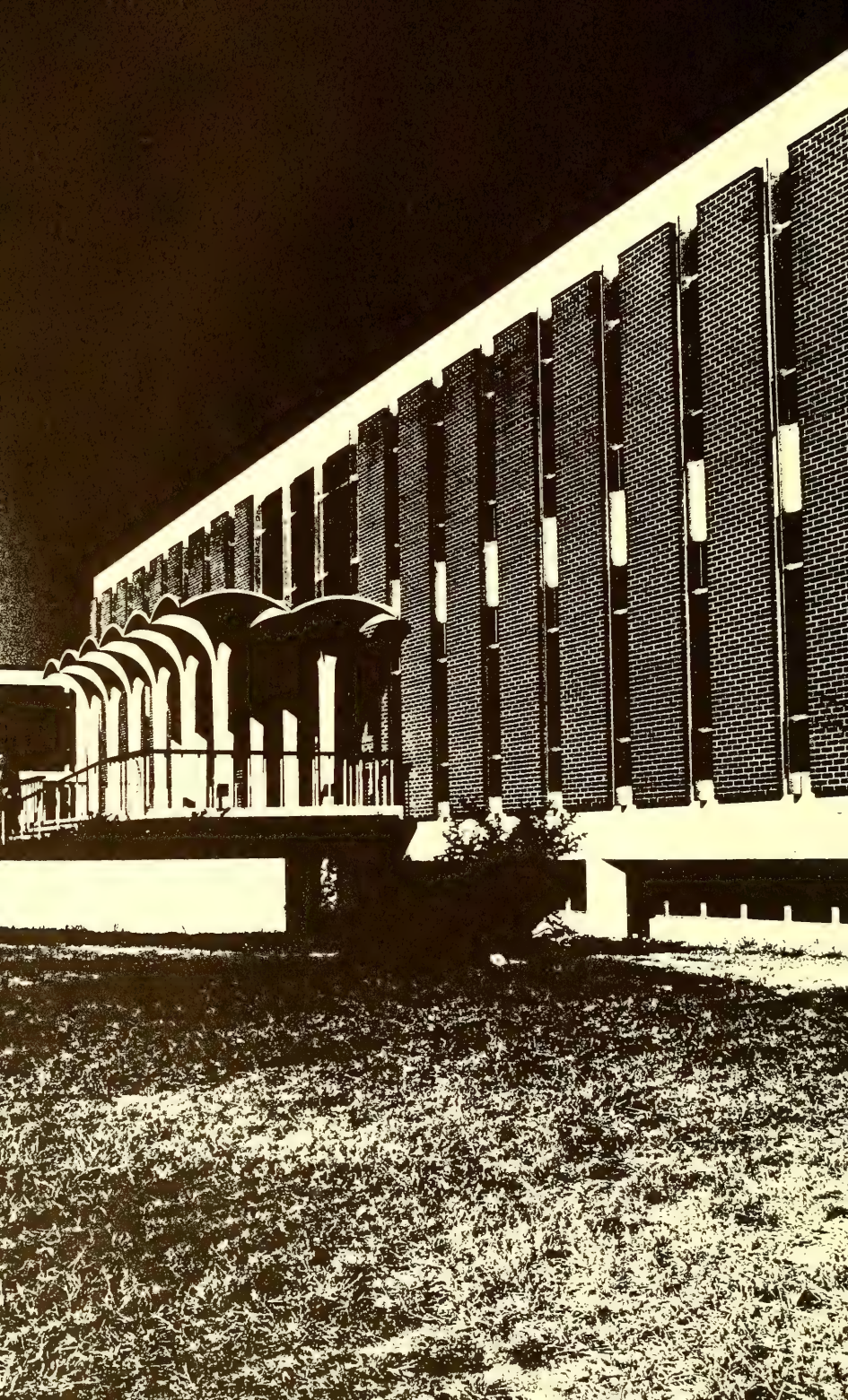


I. THE UNIVERSITY

PURPOSE

It is the long-range purpose of the University of North Carolina at Charlotte to undertake those functions of the University that may be allocated to it as the need of the State for additional University facilities develops. These functions, which have been allocated to one or more of the existing campuses at Chapel Hill, Greensboro, and Raleigh, were defined by the 1963 General Assembly as follows:

> "The University of North Carolina shall provide instruction in the liberal arts, fine arts, and sciences, and in the learned professions, including teaching, these being defined as those professions which rest upon advanced knowledge in the liberal arts and sciences; and shall be the primary state-supported agency for research in the liberal arts and sciences, pure and applied. The University shall provide instruction in the branches of learning relating to agriculture and the mechanic arts, and to other scientific and to classical studies. The University shall be the only institution in the State system of higher education authorized to award the doctor's degree. The University shall extend its influence and usefulness as far as possible to the persons of the State who are unable to avail themselves of its advantages as resident students, by extension courses, by lectures, and by such other means as may seem to them most effective."

It is the initial objective of the Charlotte Campus to provide undergraduate programs with standards comparable to those on the existing campuses and thereby lay the foundation for graduate and professional programs as rapidly as the resources become available. The University at Charlotte is now authorized to give both the degree of bachelor of arts and the degree of bachelor of science. Majors for both degrees are offered in biology, chemistry, and mathematics. In the fields of electrical and mechanical engineering, nursing, and accounting only the degree of bachelor of science is offered. The bachelor of arts degree is also offered with majors in business administration, economics, English, French, Spanish, history, political science, psychology, and sociology. Teacher education programs are offered in elementary education and in the various secondary subjects.

HISTORY

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The University of North Carolina at Charlotte came into being on July 1, 1965 as the result of legislation ratified by the 1965 General Assembly on March 3 making Charlotte College the fourth campus of the University.

The movement which led to the suggestion that the University expand to an additional campus began with the creation of the Governor's Commission on Education Beyond the High School in September 1961. One of the questions studied by the Commission was whether the need for higher education facilities in the more populous areas should be met by establishing additional campuses of the University in those areas. The President of the University referred a request from a joint subcommittee of the Governor's Commission on Education Beyond the High School to the Executive Committee of the Board of Trustees at its meeting on June 15, 1962 for an expression of its views respecting the recommendation of the Board of Trustees of Charlotte College that a fourth campus of the University of North Carolina be established at that institution. The Executive Committee asked the Chairman of the University Board to appoint a committee composed of trustees to study the proposal. A special committee was named by the Governor on July 23, 1962.

In accordance with the recommendations of both the Governor's Commission on Education Beyond the High School and the Board of Trustees of the University, the General Assembly of 1963 in the "Act to Promote and Encourage Education Beyond the High School in North Carolina" adopted a procedure for the expansion of the University.

The Executive Committee of the Board of Trustees on July 8, 1963 designated Mecklenburg County and its surrounding area as the first to be studied under the procedure outlined in the 1963 statute. Following the authorization of the study, the President of the University established the Advisory Council on Educational Policy composed of the vice presidents, the chancellors, and twelve professors from

the three then existing campuses. The Committee was first consulted concerning the study on January 28, 1964. It visited Charlotte College on February 12 and was kept informed as the study progressed. On November 16, 1964, the following conclusions, which had the endorsement of the Committee, were reported to the Board of Trustees:

1. The University of North Carolina should develop an additional campus as soon as adequate funds for this purpose are appropriated by the General Assembly.
2. The additional campus should be located in Mecklenburg County.
3. Charlotte College should be merged with the University of North Carolina and reorganized as the fourth campus of the University.

The Trustees on the same date passed a resolution making Charlotte College the fourth campus of the University subject to the approval of the North Carolina Board of Higher Education, which was received on January 15, 1965, and the action of the General Assembly, which followed on March 3, 1965.

Charlotte College had its inception in the aftermath of World War II when the Charlotte Center of the University of North Carolina was established to provide instruction for returning veterans. In 1949, following the emergency, the University planned to close the Center. The Charlotte Board of School Commissioners, however, saw a continued need for such an institution and took steps to establish a permanent college. The 1949 General Assembly passed a bill authorizing that Board to administer the College as part of the school system. In 1958 the College officially came under the North Carolina Community College System.

The voters of Charlotte and Mecklenburg County went to the polls on four occasions to vote upon themselves taxes for the support of the institution.

A 270-acre campus eight miles from the center of Charlotte on Highway 49 was purchased on February 4, 1959, as a permanent site for the College which had begun in borrowed space in Central High School. In the fall of 1961, the College moved to the new campus.

In May 1963 the General Assembly of North Carolina

changed the status of Charlotte College to that of a senior college fully supported by the State. The campus was expanded from the original 270 acres to 897 acres by the gift of approximately 500 acres by the Mecklenburg County Commissioners for the citizens of the county in the spring of 1964, supplemented by 127 acres purchased by the State of North Carolina in 1963.

The institution, which enrolled 1,516 students in the Fall of 1964, awarded its first baccalaureate degrees on June 6, 1965.

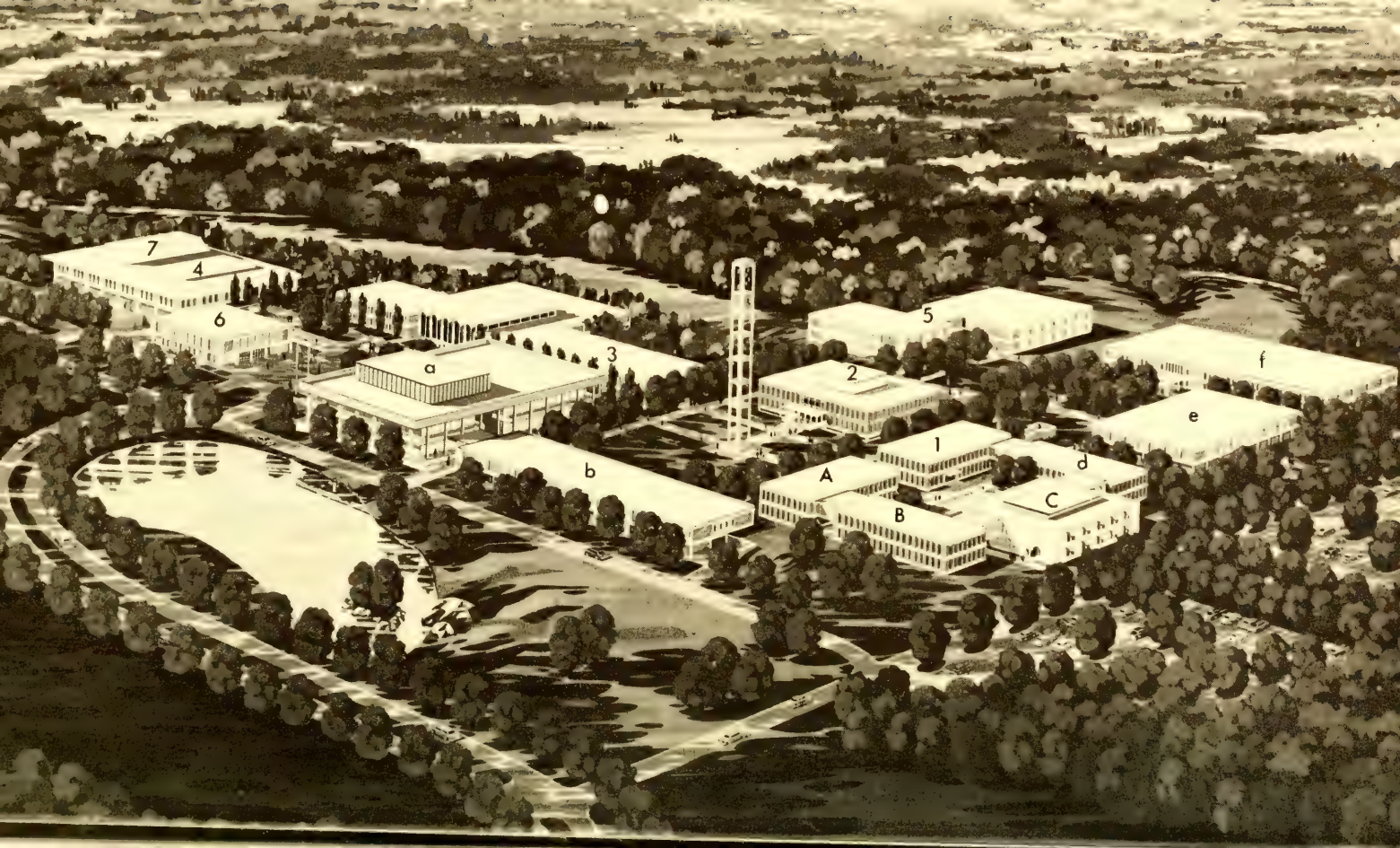
ACCREDITATION AND MEMBERSHIP

The University of North Carolina at Charlotte retained its accreditation as a junior college by the Southern Association of Colleges and Schools when it became a four-year college. It is now in the process of following the procedure required by the Association for accreditation as a senior institution. This process, which requires a self-study and visits by the accrediting agency, will continue through a two-year period at the end of which the University expects to be accredited as a senior institution retroactive to 1965, the date of the first graduating class.

In the meantime, other universities in North Carolina are considering graduates of the Charlotte campus for admission on the same basis as graduates of accredited institutions. Furthermore, representative senior colleges in North Carolina are also accepting qualified students of the University of North Carolina at Charlotte who wish to transfer before graduation.

LOCATION

The University of North Carolina at Charlotte is located on an 897-acre campus eight miles from downtown Charlotte on Highway 49 near its intersection with Highway 29 northeast of Charlotte. With a population of 235,000, Charlotte, in Mecklenburg County (population 315,000), North Carolina, serves as a center of commerce, industry, and culture of an area of twenty-four counties.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SCHEDULE OF CLASSES

Day classes are scheduled normally from 8:30 a.m. until 5:30 p.m., Monday through Friday.

Evening classes are scheduled from 6:00 p.m. until 10:30 p.m., Monday through Thursday.

ACADEMIC CALENDAR, 1965-1966

FALL SEMESTER

September 7	Tuesday	Orientation for entering students
September 8	Wednesday	Orientation for entering students Faculty meeting
September 9	Thursday	Advising and registration
September 10	Friday	Advising and registration
September 12	Sunday	Open House for parents and entering students
September 13	Monday	Classes begin
September 17	Friday	Last day to add courses for credit
October 1	Friday	Last day to drop courses without grade evaluation
November 5	Friday	Unsatisfactory grade reports
November 23	Tuesday	Last day of classes before Thanksgiving holiday
November 29	Monday	Classes resume
November 30	Monday	Last day to file degree applications for May 29, 1966 commencement
December 17	Friday	Last day of classes before Christmas holiday
January 3	Monday	Classes resume
January 12	Wednesday	Last day of classes
January 13	Thursday	Reading period
January 14	Friday	Final examinations begin
January 21	Friday	Final examinations end

SPRING SEMESTER

January 26	Wednesday	Orientation for entering students
January 27	Thursday	Advising and registration
January 28	Friday	Advising and registration
January 31	Monday	Classes begin
February 4	Friday	Last day to add courses for credit
February 18	Friday	Last day to drop courses without grade evaluation
April 1	Friday	Unsatisfactory grade reports
April 7	Thursday	Last day of classes before Easter vacation
April 13	Wednesday	Classes resume
May 18	Wednesday	Last day of classes
May 19	Thursday	Reading period
May 20	Friday	Final examinations begin
May 27	Friday	Final examinations end
May 29	Sunday	Commencement

SUMMER SESSIONS, 1966

First Session

June 6	Monday	New student orientation
June 7	Tuesday	Registration
June 8	Wednesday	First day of classes
June 10	Friday	Last day for registration
June 14	Tuesday	Last day to drop courses without grade evaluation
July 4	Monday	Holiday
July 13	Wednesday	Last day of classes
July 14-15	Thurs.-Fri.	Final examinations

Second Session

July 18	Monday	Registration
July 19	Tuesday	First day of classes
July 21	Thursday	Last day for registration
July 25	Monday	Last day to drop courses without grade evaluation
August 22	Monday	Last day of classes
August 23-24	Tues.-Wed.	Final examinations

II. ADMISSIONS AND ACADEMIC REGULATIONS

ADMISSIONS AND ACADEMIC REGULATIONS

REQUIREMENTS FOR ADMISSION

APPLICATION FOR FRESHMAN STANDING

Formal application for admission to freshman standing is made by submitting the following:

1. A record of graduation from an accredited high school or preparatory school. The applicant must present sixteen acceptable units, as required by the degree program for which he applies. Only three of these sixteen units may be in nonacademic or vocational subjects, such as home economics, agriculture, shorthand, typewriting, or bookkeeping.
2. Satisfactory scores on the Scholastic Aptitude Test of the College Entrance Examination Board. Applicant must rank in the upper half of his class.

   Engineering students are required to have at least 450 on the Mathematics portion of the Test or a satisfactory score on a locally administered Mathematics examination.
3. Personal data, including recommendation from the high school or preparatory school, to be submitted on the application form to be obtained from the Admissions Office of the University.
4. Application fee of $10.00. See page 27.

ADMISSION OF TRANSFER STUDENTS

TRANSFER FROM COLLEGE OR UNIVERSITY

A student transferring to this institution from another college or university must fulfill the requirements for admission to the freshman class, including high school transcript and College Board Examination scores. The student should present an official transcript of record from each college previously attended showing honorable dismissal. Recommendations should be sent from all institutions previously attended. Applicants may be asked to take special tests as a condition of admission.

TRANSFER FROM JUNIOR COLLEGE

Transfer students entering the University after attending a junior college will receive no more than 66 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Arts degree and no more than 70 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Science and Bachelor of Science in Engineering and Bachelor of Science in Nursing degrees.

GRADE REQUIREMENTS

A grade of C is required on each course for which transfer credit is given. A course passed with the lowest passing grade at another institution does not give hours credit toward graduation, but it may be used to satisfy a subject requirement of the University, provided written permission is granted by the chairman of the discipline represented by the course.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Prescribed courses for admission to candidacy for the degree of Bachelor of Arts or Bachelor of Science are:

English	4 units	Natural Science	1 unit[3]
Mathematics	2½ units[1]	Electives	4½ units
Foreign Language	2 units[2]		
United States History and Social Science	2 units	(Total)	16 units

[1] The 2½ units of Mathematics must include 1 unit of Plane Geometry or the equivalent in integrated courses. Solid Geometry must be included for Chemistry and Mathematics majors.
[2] Two units in the same Foreign Language are required.
[3] The Natural Science presented must represent one year with laboratory.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Prescribed courses for admission to candidacy for the degree of Bachelor of Science in Engineering are:

English	4 units	Natural Science	1 to 2 units
United States History and Social Science	1 to 2 units	Electives	3½ to 7½ units
Mathematics	3 units[1]	(Total)	16 units

[1] The 3 units of Mathematics must include:

Algebra	1½ units
Plane and solid Geometry	1 unit
Trigonometry	½ unit

or the equivalent of these in integrated courses.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

The requirements for admission to candidacy for the degree of Bachelor of Science in Nursing are the same as those prescribed for admission to candidacy for the degrees of Bachelor of Arts and Bachelor of Science.

TERMINAL CURRICULA (ASSOCIATE IN ARTS)

The prescribed course requirements for admission to the terminal curricula in Business Administration and Accounting or in General Business and Secretarial Science are:

English	4 units	Natural Science	1 unit
Mathematics	1 to 2 units	Electives	7 to 9 units
United States History and Social Science	1 to 2 units	(Total)	16 units

DEFICIENCIES IN ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF SCIENCE, BACHELOR OF SCIENCE IN ENGINEERING, OR BACHELOR OF SCIENCE IN NURSING

Admission with deficiencies in Mathematics and in Foreign Language may be granted to applicants whose records are otherwise acceptable.

Removal of deficiencies before registration for the first semester is desirable, but all deficiencies must be removed before registration for the third semester.

See Part III, *Degrees*, for Foreign Language requirements.

ADMISSION OF UNCLASSIFIED STUDENTS

An unclassified student is one who is earning University credit, but is not working toward the completion of a degree program at the University.

Students in this category must meet the same entrance requirements as regular students in order to earn University credits. As a rule, unclassified students must have the approval of the head of the department in which the courses are to be taken, to register for these courses.

Such students must abide by the same regulations as regular students. If, at a later date, an unclassified student changes to regular status, the credits earned while he was unclassified will be accepted only if he has satisfactorily completed the proper prerequisites.

ADMISSION OF SPECIAL STUDENTS

Students who do not wish to earn degree credit because of special reasons may enroll as special students. The usual admission requirements may be waived for such students, but after admission regular rules of scholarship will apply to them.

If special students wish to change to regular status at a later date, they must meet the same admissions requirements as regular students.

ADMISSION OF AUDITORS

Admission as an auditor requires permission of the department head. The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit. They are, however, expected to attend class regularly.

EXCEPTIONS TO ADMISSION REQUIREMENTS

Exceptions to admissions requirements are made only by the Committee on Admissions of the University.

VETERANS AND WAR ORPHANS EDUCATION

The University provides educational opportunities for veterans, war orphans, and children of totally disabled

service-connected veterans. Veterans seeking training under the provisions of Public Laws 894 and 87-815 (Veterans Vocational Rehabilitation Program), Public Law 550 (Veterans Readjustment Assistance Act of 1952), and war orphans seeking training under Public Law 634 (War Orphans Educational Assistance Act of 1956), and children of totally disabled service-connected veterans desiring benefits of Public Law 88-361 (extension of War Orphans Educational Assistance Act) must enroll for a minimum of 14 semester hours in order to receive full subsistence. Routines involving letters of eligibility, interruption of training, and the like are handled by the University through the Registrar's Office. Technical questions are referred to Mecklenburg County Veterans Service Office, 123 North Poplar Street, Charlotte; telephone number 333-8616.

Before the time of registration, each veteran or war orphan who wishes to enter the University should:

1. Make application for admission according to the procedure described on pages 14 to 19 of the catalogue. Forward to the Registrar transcripts of all previous high school and/or college courses completed before or after induction or as a part of Army or Navy basic training or specialized training program, and also records of courses taken by correspondence through the United States Armed Forces Institute. The latter records may be secured from the United States Armed Forces Institute, Madison, Wisconsin. All transcripts and records should be sent directly from the school, college, or other agency to the University.
2. Make application through the local V.A. or Veterans Service Office for a Certificate of Eligibility and Entitlement.

War orphans training under Public Law 634, children of totally disabled service-connected veterans training under Public Law 88-361 and veterans training under Public Law 550 will receive an educational and training allowance each month from the government to meet part of the expenses of their training and living costs. Tuition, fees, books, sup-

plies and equipment will not be paid by the government; instead, they will have to be paid out of the monthly educational and training allowance. Veterans training under Public Laws 894, 87-815 will be furnished tuition, fees, books and supplies as determined by the V.A. and school officials. A veteran or war orphan or child of a totally disabled service-connected veteran will receive his monthly allowance sometime after the end of each month of training completed. Before the Veterans Administration can pay him, the law requires a certification from the trainee and the University that he was enrolled in and was pursuing his course during that period. Veterans, war orphans and children of totally disabled service-connected veterans attending the University are required to maintain satisfactory academic achievement and attendance.

COLLEGE ENTRANCE EXAMINATION

All candidates for admission will be required to present satisfactory scores on the Scholastic Aptitude Section of the College Entrance Examination.

Arrangement for these tests is the responsibility of the applicant and should be made with the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey, not less than one month before the date of the test. On the application for the test the student should specify that the scores be sent to the Registrar, The University of North Carolina at Charlotte, Post Office Box 20428, Charlotte, North Carolina 28202.

College Entrance Board tests are given at a large number of examination centers throughout the United States, including Charlotte, on:

July 14, 1965	March 5, 1966
December 4, 1965	May 7, 1966
January 8, 1966	July 9, 1966

ADVANCED PLACEMENT COURSE CREDIT

Any student may apply for course credit in appropriate subjects if he has had an Advanced Placement Course in secondary or preparatory school, and has received a score of four or five on the Advanced Placement Test. These tests are given in May of each year by the College Entrance Examination Board.

ACADEMIC REGULATIONS

GRADING

The unit of measurement of university work is the semester hour. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour.

Letters are used to indicate the quality of work done. Each letter carries a quality point value for each semester hour of work attempted. The meaning of each letter with its accompanying quality point factor is:

Letter	Description	Quality Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	0
W	Withdrawal	0

QUALITY POINT RATIO

A student's quality point ratio is determined by multiplying the number of quality points for each grade by the number of hours received in that course and adding all accumulated quality points together, then dividing by the total number of hours the student has attempted, except those for which the student has received a grade of W.

(See Requirements for Continued Enrollment, p. 21)

GRADE OF I

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester in residence, but no later than twelve months after the end of the term in which the I was assigned. If the I is not removed during the specified time, a grade of F is automatically assigned.

GRADE OF W

The grade of W will be given for a course dropped on or before the last day to drop courses without grade evaluation. When a student withdraws after that date, as indicated on the Academic Calendar, but before the end of a semester, and if in the opinion of his instructor he is passing at the time of withdrawal, he will receive the grade of W. Courses given the grade of W do not count as hours attempted.

WITHDRAWAL

Any student who leaves the University, except after the close of a semester, without written notification to the Registration Office, will receive a mark of F in all courses.

ATTENDANCE

Each student is required to attend all sessions of the courses in which he is enrolled because he is held responsible for all assignments, including tests. No class cuts are allowed and no make-up tests are given.

Even in the event of personal illness or other unavoidable circumstances, no student will be given credit for any course unless he has attended at least 75 per cent of the total class hours of instruction.

REQUIREMENTS FOR CONTINUED ENROLLMENT

Any student who is not making satisfactory progress as defined below may be dropped from the University of North Carolina at Charlotte.

A student whose quality point ratio for one semester is less than 1.25 on all hours attempted at the University of North Carolina at Charlotte will be placed on academic probation. If his quality point ratio on all hours attempted at the University of North Carolina at Charlotte is less than 1.25 in each of two consecutive semesters of his enrollment, he will be ineligible to continue at the University.

At the end of the semester in which a student's earned semester-hour total reaches 25 semester hours, including transfer credit, he must have at least a 1.5 overall quality point ratio on all hours attempted at the University of

North Carolina at Charlotte in order to continue his enrollment at the University.

At the end of the semester in which a student's semester-hour total reaches 52 semester hours, including transfer credit, he must have at least a 1.75 overall quality point ratio on all hours attempted at the University of North Carolina at Charlotte in order to continue his enrollment at the University.

After this point, a student is expected to make at least a 2.0 quality point ratio for each semester. A student at this level who makes less than a 2.0 ratio in any given semester will be placed on academic probation. If he makes less than a 2.0 ratio in two successive semesters, he will be ineligible to continue at the University of North Carolina at Charlotte.

At the end of the semester in which a student's semester hour total reaches 90 semester hours, including transfer credit, he must have at least a 1.9 overall quality point ratio on all hours attempted at the University of North Carolina at Charlotte in order to continue his enrollment at the University.

REQUIREMENTS FOR READMISSION

Students entitled to honorable dismissal and in good standing who were previously enrolled at the University of North Carolina at Charlotte, but who did not complete the previous semester at the University, should apply for readmission. If students have earned credits at another college or university since last attending the University of North Carolina at Charlotte, they must submit an official transcript of credit from that institution for consideration for readmission.

REGISTRATION FOR CREDIT

Registration for credit in any course is limited to the first week of the semester. No credit will be given to a student for a course unless he is properly registered for it.

COURSE LOAD

Five subjects of not less than fifteen semester hours total constitute a normal full semester program, but a stu-

dent may register for less work. Course load is dependent on two factors: the scholastic ability of the student as reflected by his scholastic record, and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than 7 semester hours.

CHANGING OR DROPPING A COURSE

In order to change or drop a course, a student must secure written permission from his advisor and the Registrar. No student will be permitted to change a course after the first week of a semester.

A student who withdraws from a course after the last day to drop courses without grade evaluation, but before the end of a semester, will receive a grade of W if in the opinion of his instructor he is passing at the time of withdrawal, and will receive a grade of F if in the opinion of his instructor the student is failing the course at the time of withdrawal. (See *Grade of W.*)

SELECTION AND CHANGING OF CURRICULUM

Each candidate for a University degree must, at the time of entrance, apply for and be admitted to a specific degree curriculum. For the Bachelor of Arts and Bachelor of Science degrees, students must declare their choices of majors not later than the second semester of their sophomore year. A student can change from one degree or one major to another only with the recommendation of his advisor and the approval of the Academic Dean.

REQUIREMENTS FOR GRADUATION

A minimum of 126 semester hours of work is required for graduation with a baccalaureate degree. For information on four-year degrees see pages 36-43.

A minimum of 60 semester hours of work is required for graduation with an Associate in Arts Degree. For information on two-year degrees see page 43.

RESIDENCE REQUIREMENTS

The minimum residence requirement for a Bachelor's Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University unless exception to this rule be approved by the department concerned and the academic dean.

The minimum residence requirement for the Associate in Arts Degree at the University is 30 semester hours.

TRANSCRIPTS OF RECORDS

Upon request of the student, a transcript of academic credits earned at the University will be sent to any other college or university.

Each student is entitled to one official transcript of his work, provided that all accounts with the University have been settled satisfactorily. A student requesting an additional transcript should enclose one dollar for this service.

PARKING

Regular parking is restricted to faculty and students as outlined in the Student Handbook. A limited number of spaces are provided for visitors to the campus. Student and faculty automobiles must be registered with the University, and registration decals must be properly displayed.

STUDENT RESPONSIBILITY

Every student is responsible for the proper completion of his academic program, for familiarity with all requirements of the University catalogue under which he intends to graduate, for maintaining the grade average required, and for meeting all other degree requirements, including attendance at the commencement exercises at which he will receive his diploma. His advisor will counsel him, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment, and to be familiar with the information contained in the Weekly Newsletter. He is responsible for

maintaining communication with the University, by keeping on file with the Records Office at all times his current address, including ZIP code, and telephone number.

Every student, while he is associated with the University, is expected to comport himself in campus and community life in a manner that will reflect credit upon the University.

TUITION AND FEES

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

Tuition and fees are due and payable on the day of registration. Checks and money orders should be made payable to the University of North Carolina at Charlotte.

Students taking seven or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking less than seven hours of work during a regular semester will be charged a prorated portion of tuition and fees as specified below:

	EACH SEMESTER	
	In-State Students	Out-of-State Students
Seven or More Semester Hours		
Tuition	$ 87.50	$300.00
General Fee	40.50	40.50
Total	$128.00	$340.50
Five or Six Semester Hours		
Tuition	$ 43.75	$150.00
General Fee	20.25	20.25
Total	$ 64.00	$170.25
Four or Fewer Semester Hours		
Tuition	$ 22.00	$ 75.00
General Fee	10.00	10.00
Total	$ 32.00	$ 85.00

The University reserves the right to make, with the approval of the proper authorities, changes in tuition and other fees at any time.

No extra fees are charged for laboratory courses as such. However, an extra fee for individual voice study is charged in the amount of $45.00 per semester for one hour credit.

The estimated average cost of books and supplies per semester is about $50.00. Beginning students in engineering may expect an additional cost of $50.00 to $60.00 for drawing instruments, slide rule, and supplies. Uniforms and supplies for nurses will cost approximately $100.00.

RESIDENCE STATUS FOR TUITION PAYMENT

The tuition charge for legal residents of North Carolina is less than for nonresidents. A legal resident of North Carolina is one who has his domicile in this state. It is important that each applicant for admission and each enrolled student know his residence status for tuition payment and understand the regulations governing residence status. The following regulations cover most factual situations:

1) A person twenty-one years of age or older is not deemed eligible for the lower tuition rate unless he has maintained his legal residence in North Carolina for at least the six months next preceding the date of his first enrollment in an institution of higher education in this State.

2) The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is still living

unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

3) The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident minor student at the time of his first enrollment whose parents have subsequently established legal residence in North Carolina; and (b) in the case of a resident who abandons his legal residence in North Carolina. In either case, the appropriate tuition rate will become effective at the beginning of the semester or term next following the date of change of residence status.

4) The legal residence of a wife follows that of her husband, except that a woman student currently enrolled in this institution as a resident may continue as a resident even though she marry a nonresident.

5) Military personnel attached to military posts or reservations in North Carolina are not considered eligible for the lower tuition rate unless they have maintained a legal residence in the state for at least the six months next preceding the date of first enrollment in an institution of higher education in the State.

6) Aliens lawfully admitted to the United States for permanent residence who have established a legal residence in North Carolina according to paragraphs numbered 1, 2, or 4, above, are eligible for the lower tuition rate.

7) Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the lower tuition rate.

The furnishing of incomplete or incorrect information regarding residence may result in the student's dismissal from the University. The Registration Office determines each student's residence status on the basis of existing information and interpretation of regulations.

APPLICATION FEE

Applicants for admission are required to submit a $10.00 application fee with the application form. The fee will be

applied to the student's general fees in the semester for which application is made. The fee is not refunded to those who fail to complete their applications, those who are accepted and fail to enroll, and those denied admission.

LATE REGISTRATION FEE

A non-refundable fee of $10.00 will be charged for those registering after the designated registration period each semester.

GRADUATION FEE

Each member of the graduating class must pay a graduation fee of $10.00 at the beginning of the spring semester of the year in which he expects to graduate. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees in absentia.

STUDENT ACTIVITIES

A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to most athletic contests, dramatic productions, Union-sponsored activities, social and entertainment functions, and for subscriptions to the newspaper and literary magazine. The yearbook is provided free to all students taking seven or more semester hours of work each semester during the academic year. Students taking six or fewer semester hours of work each semester during the academic year may obtain a yearbook upon payment of $5.00.

REFUNDS

In case of official withdrawal during the semester, $10.00 of the general fee is not refundable.

The elapsed time is determined beginning with the first day of classes and extending to the date the student officially files his intention to drop the course or withdraw from school.

Elapsed Time	Per Cent of Refund
First 10 calendar days	80
Second 10 calendar days	60
Third 10 calendar days	40
Fourth 10 calendar days	20
After 40 days	None

FINANCIAL AID

Financial assistance is available to University students in several forms: scholarships, grants-in-aid, loans, and part-time employment. The University makes every effort within the limits of its available resources to encourage and assist students with seriousness of purpose to secure a University education. A financial problem should not deter a student from submitting an application for admission.

HOW TO APPLY

1. Each applicant for financial aid must have filed an application for admission and submitted College Board scores before his application for financial aid can be reviewed by the Committee on Scholarships and Student Aid.

2. Applications should be submitted as early as possible for financial aid for the academic year 1965-1966. Applications will be considered throughout the year if funds are available. Applications of entering freshmen will be considered during the fall semester, 1965, as well as during the spring of 1966.

3. Further information, personal counseling, and application forms may be obtained from the Dean of Student Affairs or from the Chairman of the Committee on Scholarships and Student Aid, the University of North Carolina at Charlotte, P. O. Box 20428, Charlotte, North Carolina 28202.

Once a student has filed a formal application for financial aid, he will be considered for all available scholarships, grants-in-aid, or loans. The University seeks to assign the kind of aid best suited to the needs and qualifications of the applicant. In general, the awards are approved in

amounts proportionate to the demonstrated need of the student, and his satisfactory record of achievement and school citizenship. The average grant provides tuition and fees, approximately $250.

Renewal of financial aid is based upon a student's making a clearly satisfactory record. After enrollment, the student should make application at the end of each school year for financial aid in the next year.

As in the past, the State of North Carolina is making available this year a sum of money to be used for grants to deserving students.

LOANS

The Emergency Loan Fund was established in 1958 to provide funds which students may borrow for short-term emergencies. Students may borrow up to $25 for 30 days. There is a $.25 service charge, but no interest is charged on the loan.

The Student Loan Fund provides loans of up to $100 for a year at an interest rate of 3 per cent per annum.

The National Defense Student Loan Fund is available at the University. Full-time students in need of financial assistance may borrow up to $1,000 each year for university-related expenses such as tuition, fees, books, and transportation. The interest rate is 3 per cent per annum, but no interest is charged while the student is enrolled as a full-time student at the University. Loans must be repaid within 10 years.

Prospective Teachers Scholarship Loan Fund provides funds for 300 prospective teachers each year. The loans are made in the amount of not more than $350. The fund is administered by the State Superintendent of Public Instruction, Raleigh, North Carolina. All scholarship loans are evidenced by notes which bear interest at the rate of 4 per cent per annum from September 1 following fulfillment by a prospective teacher of the requirements for a teacher's certificate based upon the bachelor's degree. Scholarship loans, together with 4 per cent thereon, *may be cancelled by teaching one full year in North Carolina for each annual scholarship received.* Consideration for a

scholarship loan is given to the aptitude, purposefulness, scholarship, character, and financial need of the applicant. For detailed information about the program, write to Prospective Teachers Scholarship Loan Fund, State Department of Public Instruction, Raleigh, North Carolina.

Other Loan Funds are made available by clubs and individuals. These include the Charlotte Kiwanis Club Loan Fund, the Lions Club Loan Fund, the Rotary Club Loan Fund, the Annas Loan Fund, and the Ebersole Fund.

Application blanks and details on loan funds may be obtained from the Dean of Student Affairs, The University of North Carolina at Charlotte, Post Office Box 20428, Charlotte, North Carolina 28202.

SCHOLARSHIPS

Altrusa Club of Charlotte
American Business Women's Association
  Charlotte Chapter
  Mecklenburg Chapter
  Queen Charlotte Chapter
J. Murrey Atkins
Barringer Woods Woman's Club
Brycie Baber
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Chapter, National Association of Accountants
Charlotte Civitan Club
Charlotte *News*
Charlotte *Observer*
Charlotte Optimists Club
Charlotte Woman's Club
Concrete Supply Company of Charlotte
Concrete Materials, Inc.
Corporate Insurers Service, Inc.
Charlotte Sales and Marketing Executives, Inc.
Cliff M. Westbrook
Daughters of the American Revolution,
  Mecklenburg Chapter
Fidelis Bible Class, Myers Park Baptist Church
Arthur P. Harris
Harrison-Wright Company

Drs. Aubrey and Cecil Hawes
Jefferson Standard Foundation
Junior Achievement
Mecklenburg Kiwanis Club
Mumaw Engineering
Mecklenburg Pharmaceutical Society Auxiliary
Mitchell and Becker
North Carolina Professional Engineers' Society, Piedmont Chapter
North Carolina Professional Engineers' Society, Piedmont Chapter, Ladies' Auxiliary
Panhellenic Congress of Charlotte
Pepsi Cola Company of Charlotte
Phi Theta Kappa
Pilot Club
Professional Construction Estimaters' Association
Cecil Prince
Quota Club of Charlotte
Earl Whitton
Mr. and Mrs. J. L. Winningham
Woman's Allied Auxiliary, Motor Carriers' Association
Robert F. Noland

AWARDS

The Bonnie E. Cone Award is given annually to a freshman student who has demonstrated fine college spirit and made a significant contribution to college life.

The Bill Mitchell Award. Two members of the graduating class who have shown outstanding qualities of scholarship and leadership and maintained an attitude of unselfish interest in the welfare of their fellow students and of the University as a whole are selected for the award.

The Chemistry Award is presented annually to the student with the highest scholastic average in freshman chemistry.

The Mathematics Award is given annually to the student whose achievement in mathematics during his freshman year is judged most outstanding.

The Physics Award is given annually to the outstanding student in introductory physics.

The James W. Grey Award is given annually to a student who has maintained an above average scholastic average while participating in programs of organized sports and physical fitness at the University.

The Charlotte Panhellenic Award. In considering young women for the Panhellenic Award, acceptance in the University Community is the chief factor. The candidate should be an exemplary student: in conduct, poised and gracious; in service, able and cooperative; in scholarship, superior and enthusiastic.

The Education Award is presented annually to two members of the graduating class who have shown qualities of leadership and scholarship and who are planning to enter the teaching profession.

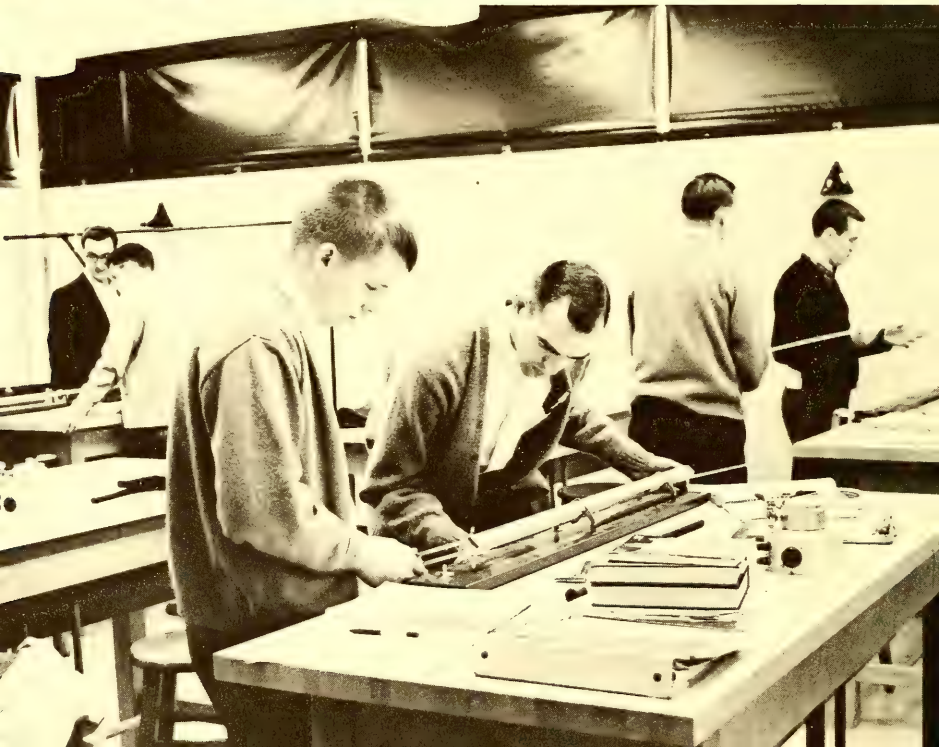
HONORS

DEAN'S LIST

The Dean's List is a record of all students whose academic record merits special recognition from the University. In order to qualify for the Dean's List, a student must take a full program of five subjects (at least fifteen semester hours of work) and maintain a quality point average of at least 3.00 (a grade of B) with no grade lower than a C.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages are honored by being named Commencement Marshals. The marshal who has the best academic record is designated Chief Marshal.



III. DEGREES

DEGREES OFFERED

Bachelor of Arts (B.A.):
- Biology
- Business Administration
- Chemistry
- Economics
- English
- French
- History
- Mathematics
- Political Science
- Psychology
- Sociology
- Spanish

Bachelor of Science (B.S.):
- Accounting
- Biology
- Chemistry
- Mathematics

Bachelor of Science in Engineering

Bachelor of Science in Nursing

Associate in Arts (A.A.):
- Business Administration and Accounting
- General Business and Secretarial Administration

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

The degree of Bachelor of Arts is offered with majors in the following fields: Biology, Business Administration, Chemistry, Economics, English, French, History, Mathematics, Political Science, Psychology, Sociology, and Spanish.

COURSE REQUIREMENTS

	Semester Hours
English 101, 102, 201, and 202, 203, or 204. Students making a sufficiently high placement	12

test score in English are exempted from English 101.

History 101 and 102. 6

Mathematics, 6 hours, including either 102 or 141. 6

Natural Science, 16 hours, consisting of four laboratory courses of at least 4 hours each. At least one of these must be taken from each of the following groups: Group A: Chemistry, Physics, Geology, Geography 101. Group B: Biology, Psychology 201. Psychology 201 may be offered as a Natural Science or as a Social Science, but not as both. 16

Social Science, 9 hours, taken from:
Economics, History, Political Science, Anthropology, Sociology, Psychology, Philosophy, or Religion. 9
A course in Philosophy or Religion may be offered as a Social Science or as a Humanity, but not as both.

Humanities, 6 hours, taken from:
Art Appreciation, Art History; English, French, German, or Spanish literature; Philosophy, or Religion. 6
A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.

Courses in the major field: see the requirements of the major department. —

Related work: 15 to 21 hours of work related to the major field, as required by the major department. 15-21

Foreign Language: completion of one semester of a foreign language at the 300 level. See Foreign Language Requirement, page 39 ff. —

SEMESTER HOUR REQUIREMENTS

Total required: a minimum of 126 hours, but see the requirements of the major program.

Maximum number of hours permitted from a single department to count toward the degree: 36 semester hours.

Related work: 15 to 21 hours, as required by the major department, but in no more than two departments other than the major.

Hours in the major department: see the requirements of that department.

QUALITY POINT REQUIREMENTS

In all courses attempted at the University, a minimum overall quality point average of 2.00 is required.

In all courses in the major department, a minimum overall quality point average of 2.00 is required.

COURSE LEVEL REQUIREMENT

Junior and Senior students must have the consent of their major department to enroll in any course below the 300 level, not required in their degree program.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered with majors in the following fields of study: Accounting, Biology, Chemistry, and Mathematics.

GENERAL DEGREE REQUIREMENTS:

All general degree requirements are the same for the degree of Bachelor of Science as for the degree of Bachelor of Arts, with the following exceptions: The maximum number of hours permitted from a single department to count toward the degree of Bachelor of Science is 46 semester hours; related work of 15-25 hours is required.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

The following suggested program for the freshman and sophomore years is designed to assist new students in making out their initial programs. It is planned to initiate the satisfaction of basic degree requirements, and will apply to most curricula. However, the student must consult the major department for modifications of this program designed to coordinate with the entire major degree program.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

Course	Number	Semester Hours	Total
	FRESHMAN		
	First Semester		
English	101	3	
History	101	3	
Mathematics	101	3	
Natural Science		4	
Foreign Language	201*	3	
			16
	Second Semester		
English	102	3	
History	102	3	
Mathematics	102	3	
Natural Science		4	
Foreign Language	202*	3	
			16
			32
	SOPHOMORE		
	First Semester		
English	201	3	
Social Science (or Humanities)		3	
Natural Science		4	
Foreign Language	300 level	3	
Elective		3	
			16
	Second Semester		
English	202 (or 203 or 204)	3	
Social Science (or Humanities)		6	
Natural Science		4	
Elective		3	
			16
			32

* See foreign language requirements, below.

FOREIGN LANGUAGE REQUIREMENTS:

I. On entering the University of North Carolina at Charlotte, students who present for admission one unit of a high school language, or less than one unit, must

complete courses 101, 102, 201, 202, and one semester at the 300 level in a foreign language. No credit will be given for courses 101 and 102, when used to make up an entrance deficiency.

II. Students who present one or more units of a high school language for admission should take the language placement test during the orientation period, when they intend to continue the same language at the University. On the basis of these test scores, students will be assigned to the foreign language course that corresponds to their competence as measured by these standardized tests.

A. Student continuing the same language as that presented for admission:
   1. If he places by test in 201, he will be required to complete courses 201, 202, and one semester at the 300 level.
   2. If he places in 202, he will be required to take only 202 and one semester at the 300 level.
   3. If he places below the 200 level, he should take without degree credit 102, or 101 and 102, as the case may be, in order to be adequately prepared to continue with courses 201, 202, and a 300 course.

B. A student changing to a language other than that presented for admission, or presenting for admission a foreign language not taught at the University of North Carolina at Charlotte, will be required to complete courses 101, 102, 201, 202, and one semester at the 300 level in a new language, with the following exceptions:
   1. A student presenting two or more years of high school language for entrance credit, who enters a curriculum that requires a language different from the one he presents, may complete his requirement by completing course 202 in the required language.
   2. A student presenting for admission two years of high school Latin or Greek, or any other foreign language not taught at the University,

may satisfy the language requirement by completing course 202 in a modern foreign language.

3. A student transferring to the University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he has completed satisfactorily two years of high school foreign language.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Majors in: Electrical Engineering and Mechanical Engineering.

COURSE REQUIREMENTS: (See the curricula and course descriptions on pages 74 to 84.)

Common requirements for majors in Electrical Engineering or Mechanical Engineering

English 101, 102, 201 or 205	9
History 101 and 102	6
Mathematics 141, 142, 241, 242, 371, and 372	22
Chemistry 101 and 102	8
Economics 201	3
Physics 201, 202, and 311	11
Engineering 100 and 111	3
Engineering Mechanics 214	3
Mechanical Engineering 311	3
Total common requirements, semester hours:	68

Further required and elective courses for Electrical Engineering:

Electrical Engineering 211, 212, 252, 311, 312, 321, 332, 351, 352, 421, 431, 441, 442, and 452	35
Electrical Engineering electives, three courses	9
Engineering Mechanics 291	3
Mechanical Engineering 392	3
Humanities and Social Science electives, four courses	12
Technical or Humanities electives, three courses	9
Total further requirements for electrical engineering, semester hrs.	71

Further required and elective courses for Mechanical Engineering:

Mechanical Engineering 261, 312, 321, 322, 351, 352, 411, 421, 422, 451, and 452	25
Mechanical Engineering electives, three courses	10
Engineering Mechanics 211, 212, 312	9
Engineering 112	1
Electrical Engineering 391 and 392	8
Humanities and Social Science electives, 3 courses	9
Technical or Humanities electives, three courses	9
Total further requirements for Mechanical Engineering, semester hrs.	71

SEMESTER HOUR REQUIREMENTS

Total required in Electrical Engineering or in Mechanical Engineering: 139 semester hours.

QUALITY POINT REQUIREMENTS

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

All courses in engineering: a minimum overall quality-point average of 2.00 is required.

The requirements for continued enrollment are as shown on pages 21-22.

COURSE LEVEL REQUIREMENTS

Junior and Senior students must have the consent of the Engineering Department to enroll in any 100 or 200 courses not required in their degree program. The Engineering Electives, the Humanities and Social Science Electives, and the Technical or Humanities Electives will ordinarily consist of sequences of related courses and are subject to the prior approval of the Engineering Department. See the footnotes to the engineering curricula, pages 76 and 80-81.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

For details on the requirements for the major and related work, and for courses currently offered, consult Nursing under Part IV, Courses of Study.

REQUIREMENTS FOR THE DEGREE OF ASSOCIATE IN ARTS

Available in: Business Administration and Accounting; General Business and Secretarial Administration.

COURSE REQUIREMENTS:

See Department of Economics and Business Administration.

SEMESTER HOUR REQUIREMENT:

Minimum: 60 hours.

Minimum that must be earned at the University of North Carolina at Charlotte: 30 hours.

QUALITY POINT REQUIREMENTS:

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

PRE-PROFESSIONAL AND PROFESSIONAL CURRICULA

Students who plan to enter a professional school are advised to plan their program so that general requirements for the Bachelor of Arts or Bachelor of Science degree are met in addition to the requirements for the professional program being considered. Candidates for the Bachelor of Arts or Bachelor of Science degree will encounter no difficulty in completing the work for entrance into the professional program while satisfying the requirements for the degree. Pre-professional students should recognize that a broad cultural education is important, and that as many courses as possible should be taken in the humanities, arts, social sciences, and natural sciences. The prospective professional student should inform his advisor of his plans, to ensure that all prescribed work will be completed. The student should familiarize himself with the entrance requirements of the particular school that he hopes to attend.

PRE-MEDICAL AND PRE-DENTAL DEGREE PROGRAMS

See Biology Department, degrees and course offerings.
See Chemistry Department, page 53.

PRE-SOCIAL WORK CURRICULUM

See Psychology Department, pages 112-113.
See Sociology Department, pages 114-115.

IV. COURSES OF STUDY

COURSES OF STUDY

Following are all courses offered by the University of North Carolina at Charlotte, listed under the department or academic area concerned. Departments and academic areas are listed alphabetically. Under each is given the following information:

The name of the department or area; the chairman and other faculty, with their rank; a statement, where required, of the general policies and programs of the department; a suggested degree program, where this is applicable to the area concerned; a list of the courses offered.

Courses are listed with a course number, the title of the course, the semester hours credit given in parentheses, prerequisites, if any, and a description of the subject matter of the course, with whatever requirements of class or laboratory hours are applicable. If no class hours are given, the number of class sessions per week is the same as the number of semester hours credit for the course.

Courses are in general numbered 100 to 199 for freshmen, 200 to 299 for sophomores, 300 to 399 for juniors, and 400 to 499 for seniors. However, prerequisites for each course must be consulted to determine the student's eligibility to take that course.

Where a detailed degree program is not suggested by a particular department, the student must arrange his program in consultation with the department. However, every student should consult the department of his intended major to be certain that he is following an approved program which will enable him to progress logically and successfully to the conclusion of his degree program, and to fulfill the requirements both of the University and of the major department or professional sequence.

Students intending to teach should consult both the major department and the Department of Education.

ART

Instructor Gatewood

201. ART APPRECIATION. (2) An introduction to art history and appreciation covering basic concepts, aesthetic aims, and social influences which characterize and differentiate one

civilization or period from another. Two one hour lecture periods each week.

203. BASIC DESIGN. (3) A beginning studio course to introduce the student to the fundamentals of organization, composition, and use of color in two dimensional design. Two three hour laboratory periods each week.

204. BASIC DRAWING. (3) A beginning studio course in which the various media and approaches to drawing are investigated. Two three hour laboratory periods each week.

205. PAINTING. (3) A beginning studio course investigating techniques and approaches in oil painting. Two three hour laboratory periods each week.

302. ART FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite or corequisite: Education 303. A study of materials and techniques which the teacher may use in art activities in the school. Two two hour laboratory periods each week.

310. RENAISSANCE ART. (3) A study of the painting, sculpture, and architecture of Italy and of Northern Europe during the Renaissance. Three one hour lecture periods each week.

BIOLOGY

Professor Hechenbleikner, Chairman; Assistant Professors Hampton, Matthews; Instructor Kirby

A major in Biology leading to the B.A. degree consists of 32 semester hours. A major in Biology leading to the B.S. degree consists of 40 semester hours. All Biology majors are required to complete Biology 101, 201 or 202, 203, 411, Chemistry 101 and 102. Related work will consist of 16 semester hours as approved by the Department.

Suggested Curriculum

A Major in Biology, leading to a Bachelor of Arts or Bachelor of Science Degree*

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 201 or 202	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (Hum.)	3
Elective (S.S.)	3	Elective (S.S.)	3
Related Work	4	Related Work	4
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Related Work	4
Elective (S.S.)	3	Elective	3
Related Work	4		15
Elective	3		
	17		

SENIOR YEAR

Elective (Biol.)	8	Elective (Biol.)	4
Biology Seminar	1	Electives	12
Elective	6		16
	15	Total Hours: 129	

* The B.A. and B.S. degrees differ in the number of hours required in Biology. A student wishing to receive a B.S. Degree must take two additional courses in Biology (8 hours) in place of the free electives listed above. Related work consists of 16 semester hours as approved by the department. It is recommended that a biology major include 2 courses in Physics, 2 courses in Organic Chemistry, at least 1 course in Geography or Geology, and Mathematics 221 in his program. Students who may attend graduate school should choose French, German or Russian as a Foreign Language.

Suggested curriculum for Pre-Medicine and Pre-Dentistry, leading to a Bachelor of Arts Degree in Biology with related work in Chemistry.

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 202	4
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (S.S.)	3
Elective (S.S.)	3	Elective	3
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Physics 102	4
Mathematics 221	3	Psychology 201	4
Physics 101	4		
Elective	3		16
	17		

SENIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Biology Seminar	1	Elective (Humanities)	3
Chemistry 303	4	Elective (S.S.)	3
Geography or Geology	4		14
Philosophy	3	Total Hours: 129	
	16		

101. INTRODUCTORY BIOLOGY. (4) The introductory course is designed to acquaint the student with the fundamental principles of life. The molecular and cellular basis of biology is stressed, with emphasis on the following: matter and energy, protoplasm, cell structure, cell physiology, cell reproduction, genetics and concepts of evolution. Three lecture hours and one laboratory period of three hours a week.

201. PLANT MORPHOLOGY. (4) Prerequisite; Biology 101. Selected life histories of major plant groups, stressing relationships, reproduction, and classification of biologically and economically important plant groups. Three lecture hours and one laboratory period of three hours a week.

202. VERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of the vertebrates stressing classification, morphology, anatomy, distribution, life histories, and economic importance. Two lecture hours and two laboratory periods of two hours each a week.

203. MICROBIOLOGY. (4) Prerequisites: Biology 201 and 202. A study of the microscopic plants and animals stressing fundamentals of morphology, physiology, culture methods and methods of control. Three lecture hours and one laboratory period of three hours a week.

204. HUMAN ANATOMY AND PHYSIOLOGY. (4) Prerequisite: Biology 101. A course stressing the basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours and one laboratory period of three hours a week. (Does not apply toward a major.)

205. GENERAL PHYSIOLOGY. (4) Prerequisite: Biology 202. A study of the roles of the organ systems of animals in the physiology of growth, metabolism, movement, reproduction and

integration. Three lecture hours and one laboratory period of three hours a week.

301. INVERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of representative invertebrate organisms. Phylogeny, morphology, physiology, ecology, economic and biological significance of invertebrates are considered. Three lecture hours and one laboratory period of three hours a week.

302. GENETICS. (4) Prerequisite: Biology 201 or 202. A course designed to acquaint the student of heredity with the facts and principles of inheritance and their consequences. Human inheritance, plant and animal breeding, especially the practical applications pertinent to improvements in offspring are emphasized. Three lecture hours and one laboratory period of three hours a week.

303. COMPARATIVE VERTEBRATE ANATOMY. (4) Prerequisite: Biology 202. Comparative studies of phylogeny and functional anatomy of vertebrates are emphasized. Three lecture hours and one laboratory period of three hours a week.

304. PLANT SYSTEMATICS. (4) Prerequisite: Biology 201. A study of the classification, phylogenetic relationships, and structure of the seed plants. Special emphasis is placed upon their biological relationships by means of field trips and by the collection and identification of specimens collected in the local environment. Two lecture hours and two laboratory periods of two hours each a week.

305. ECOLOGY. (4) Prerequisite: Biology 201 or 202. The fundamental principles of the relationships of plants and animals to each other and to the environment are discussed and demonstrated by trips in the local area. Two lecture hours and two laboratory periods of two hours each a week.

306. CYTOLOGY. (4) Prerequisite: Biology 201 or 202. A study of the organization of cells stressing the morphological and chemical make-up of cellular constituents and their interaction. Two lecture hours and two laboratory periods of two hours each a week.

401. HISTOLOGY. (4) Prerequisite: Biology 202. A microscopic study of vertebrate tissues and organs. Techniques of preparing tissues for study are also included in this course. Two lecture hours and two laboratory periods of two hours each a week.

402. EMBRYOLOGY. (4) Prerequisite: Biology 202. Studies in the gametogenesis, fertilization, early embryology and organogenesis of vertebrates. Two lecture hours and two laboratory hours each week.

410. INVESTIGATIONS IN BIOLOGY. (Two to four hours) A course designed to allow the Senior Biology major to initiate a research problem in his field of interest. All participants must have an academic standing of 3.5 in the major field.

411. SEMINAR. (1) A course required of all Biology majors, to be taken during the fall semester of the senior year. Pertinent topics in the field of Biology, and reports on original research are discussed. Students are required to act as the discussion leaders.

CHEMISTRY

Professors Burson, Chairman, Norman; Associate Professor Kuppers; Assistant Professor Gibson; Instructor Cheek

A major in chemistry leading to the B.A. degree consists of 32 semester hours of chemistry among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302 and 303. Related work, which must be approved by the Chemistry Department, consists of 20 semester hours in not more than two departments. German is the recommended foreign language for the B.A. degree.

A major in chemistry leading to the B.S. degree consists of 44 semester hours of chemistry courses among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302, 303, 304, 401, 491, and 492. Related work consists of 25 semester hours of mathematics (Mathematics 141 and above) and physics. At least two years of German or two years of Russian are required for the B.S. degree.

Students planning to start a career as a chemist with the baccalaureate degree, and those who intend to prepare for graduate study in chemistry should earn the B.S. degree.

The B.A. degree can be tailored to fit individual needs of those preparing for medical and dental school, of those who are planning to do graduate work in sciences closely related to chemistry, those preparing to teach in the public schools, and those desiring a liberal education with concentration in chemistry and related natural sciences.

The following are recommended course selections for the two degrees.

B.A. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 104**	3
German 101	3	German 102	3
History 101	3	History 102	3
	16 hrs.		16 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202	3
Math 141	4	Math 142	4
German 201	3	German 202	3
Natural Science B	4	Social Science	3
	18 hrs.		17 hrs.

5th Semester		*6th Semester*	
Chemistry 303	4	Chemistry 402	4
Physics 201	5	Physics 202	5
Math 241	4	Humanities	3
German 303	3	Social Science	3
		Elective	3
	16 hrs.		18 hrs.

7th Semester		*8th Semester*	
Chemistry 301	4	Chemistry 302	4
Humanities	3	Social Science	3
Electives	9	Electives	9
	16 hrs.		16 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

B.S. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 141	4
Math 104**	3	German 102	3
German 101	3	History 101	3
	16 hrs.		17 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
Math 142	4	Math 241	4
Physics 201	5	Physics 202	5
German 201	3	German 202	3
English 201	3	English 202	3
	19 hrs.		19 hrs.

5th Semester		*6th Semester*	
Chemistry 301	4	Chemistry 302	4
Chemistry 303	4	Chemistry 304	4
Math 242	4	History 102	3
Soc. Sci.	3	Soc. Sci.	3
Elective	3	Elective	3
	18 hrs.		17 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

7th Semester			*8th Semester*		
Chemistry 401	4		Chemistry 402	4	
Chemistry 403	2		Chemistry 403	2	
Chemistry 491	1		Chemistry 492	1	
Nat. Sci. B.	4		Social Sci.	3	
Math or Physics	3	(4)	Math or Physics	3	(4)
Humanities	3		Humanities	3	
	17 (18) hrs.			16 (17) hrs.	

101. GENERAL CHEMISTRY. (4) Prerequisite or corequisite: Mathematics 101, or Mathematics 103. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Three lecture hours and one laboratory period of three hours per week.

102. QUALITATIVE ANALYSIS. (4) Prerequisite: Chemistry 101. Continuation of Chemistry 101. Chemical equilibrium and descriptive chemistry of selected elements and their compounds studied by means of a systematic scheme for the separation and identification of common cations and anions. Three lecture hours and one laboratory period of three hours per week.

201. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 102. Basic theories, principles, and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Laboratory includes qualitative organic analysis. Three lecture hours and two laboratory periods of three hours each per week.

202. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 201. Continuation of Chemistry 201. Three lecture hours and two laboratory periods of three hours each per week.

203. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 102. Lecture same as Chemistry 201. Three lecture hours and one laboratory period of three hours a week.

204. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 203. Lecture same as Chemistry 202. Continuation of Chemistry 203. Three lecture hours and one laboratory period of three hours a week.

301. PHYSICAL CHEMISTRY. (4) Prerequisites: Chemistry 102, Mathematics 241, Physics 202. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours and one laboratory period of three hours per week.

302. PHYSICAL CHEMISTRY. (4) Prerequisite: Chemistry 301. Continuation of Chemistry 301. Three lecture hours and one laboratory period of three hours a week.

303. QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 102 and satisfactory work in college mathematics and physics. Introductory course in quantitative analytical chemistry, including both volumetric and gravimetric procedures. Two lecture hours and two laboratory periods of three hours each a week.

304. ADVANCED QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 301, Chemistry 303. Continuation of Chemistry 303, involving more difficult methods including instrumental methods such as spectrophotometric, electroanalytical, and chromatographic techniques. Two lecture hours and two laboratory periods of three hours each a week.

401. ADVANCED INORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 302, 304. Descriptive and theoretical inorganic chemistry, including the application of physical-chemical principles to the study of inorganic systems. Laboratory work involving inorganic preparations and analytical instrumental techniques. Three lecture hours and one laboratory period of three hours a week.

402. ADVANCED ORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 202 (or 204), 303. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis, including instrumental methods. Two lecture hours and two laboratory periods of three hours each a week.

403. INDEPENDENT STUDY AND RESEARCH. (1 to 4) Prerequisites: Chemistry 204 (or 202), 302, 304. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry, or biochemistry; introduction to research. Hours in consultation, library and laboratory to be determined.

450. QUANTUM CHEMISTRY. (3) Prerequisites: Chemistry 302 and Mathematics 372. (The latter may be taken concurrently.) The basic postulates of quantum mechanics. The solution of the Schrodinger equation for the hydrogen atom. Introduction to the concepts of molecular orbitals and valence bond treatments in interpreting bonding in more complex molecules. Three lecture hours per week.

491. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Discussion of recent developments in chemistry. Written and oral reports will be submitted.

492. CHEMISTRY SEMINAR (1) Prerequisite: Senior Standing. Continuation of Chemistry 491.

ECONOMICS AND BUSINESS ADMINISTRATION

Professor Wubben, Chairman; Assistant Professors Blachman, Higgins, Klein; Instructors Causey, Dunn, Williamson

Accounting

A major in Accounting leading to the B.S. degree consists of the following 39 semester hours of courses: Business Administration 201, 202, 311, 316, 400, 380, 371, 373, 471, 473, 475, 477, and 478.

The following fifteen hours of related work are required: Mathematics 221, 222, Economics 305, Economics 324, and three additional hours either in mathematics or economics.

Six semester hours of humanities and nine semester hours of social science are required. The course in Principles of Economics (Economics 201, 202), which is prerequisite for many advanced courses in this program, will be specified as satisfying six hours of the social science requirement.

A Representative Program for a Course of Study Leading to the B.S. Degree in Accounting

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics 102	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Mathematics 221**	3	Mathematics 222**	3
Bus. Administration 201*	3	Business Administration 202*	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 311*	3	Economics 323**	3
Business Admin. 373*	3	Business Admin. 371*	3
Foreign Language (or elect.)	3	Business Admin. 471*	3
Science	4	Science	4
	16	Humanities	3
			19

SENIOR YEAR

Economics 305**	3	Business Admin. 400*	3
Business Admin. 473*	3	Business Admin. 475*	3
Business Admin. 477*	3	Business Admin. 478*	3
Social Science	3	Free Elective	3
Humanities	3	Related work in Econ. or Math**	3
	15		15

TOTAL HOURS: 127

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 hours of the Social Science requirement).
**Indicates related work.

Business Administration

A major in Business Administration leading to the B.A. degree consists of the following courses: Business Administration 201, 202, 371, 316, 380, 311, 400, and 444.

The following related work is required: Mathematics 221, 222, Economics 305, 324, 316, and 480.

The course in Principles of Economics (Economics 201, 202) will satisfy the requirement of six semester hours of social science. This course is prerequisite to many of the courses listed above.

A Representative Program for a Course of Study Leading to the B.A. Degree in Business Administration

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 371*	3	Business Admin. 311*	3
Economics 324*	3	Science	4
Foreign Lang. (or elect.)	3	Free elective	3
Science	4	Free elective	3
	16		16

SENIOR YEAR

Business Admin. 400*	3	Business Admin. 444*	3
Economics 316*	3	Economics 480*	3
Economics 305*	3	Free elective	3
Free elective	3	Free elective	3
Free elective	3	Free elective	3
		Free elective	2
	15		17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying the Social Science requirement), and Mathematics 221, 222 (Probability and Statistics).

Economics

A major in Economics leading to the B.A. degree consists of 24 hours of courses offered by the Department of Economics numbered 300 and above. These 24 hours must include Economics 315, 322, 323, 471, 305, and three of the following: Economics 416, 324, 480, 375, and 477.

The following 21 hours of related work are required: Mathematics 221, 222; Business Administration 201, 202, and three of the following four courses: Business Administration 311, 316, 400, 444.

The course in Principles of Economics (Economics 201, 202), which is prerequisite for many of the courses listed above, will satisfy the requirement of six semester hours of social science.

A Representative Program for a Course of Study Leading to the B.A. Degree in Economics

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 101	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Language (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Economics 322*	3	Economics 323*	3
Economics 315*	3	Economics elective*	3
Related work in Bus. Adm.*	3	Related work in Bus. Adm.*	3
Science	4	Science	4
Foreign Lang. (or elect.)	3	Free elective	3
	16		16

SENIOR YEAR

Economics 471*	3	Economics elective*	3
Economics 305*	3	Related work in Bus. Adm.*	3
Economics elective*	3	Free elective	3
Free elective	3	Free elective	3
Free elective	3	Free elective	3
	15	Free elective	2
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying the Social Science requirement) and Mathematics 221, 222 (Probability & Statistics).

BUSINESS ADMINISTRATION

201. PRINCIPLES OF ACCOUNTING. (3) Prerequisite or corequisite: Economics 201. A study of fundamental accounting principles, with emphasis on managerial uses of accounting data, and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

202. PRINCIPLES OF ACCOUNTING. (3) Prerequisite: Business Administration 201. A study of basic accounting theory; corporate financing and reporting; financial planning; and an introduction to cost accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

311. MARKETING. (3) Prerequisite: Economics 202. Prerequisite or corequisite: Business Administration 201. A consideration of the problems involved in the physical distribution of goods from the producer to the final consumer. Attention is given to the various marketing channels and institutions. In general, the course will be taught from the standpoint of the producer of the product to be marketed.

316. FINANCIAL MANAGEMENT. (3) Prerequisites: Economics 324 and Business Administration 201. Principles and problems of business financing. Particular emphasis on financial planning and control.

371. COST ACCOUNTING. (3) Prerequisite: Business Administration 202. A study of cost determination and control. Includes

procedures for job order, process and standard systems, and management uses of cost data. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

373. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration 202. A review of basic accounting principles; accounting for resources and liabilities; special problems peculiar to corporations; and analysis and interpretation of accounting reports. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

380. BUSINESS LAW. (3) Prerequisite or corequisite: Economics 202; prerequisite: Business Administration 201 or Business Administration T102. A study of the legal environment in which a business operates, topics covered include contracts, sales, negotiable instruments, agency, partnerships, and corporations.

400. PRODUCTION MANAGEMENT. (3) Prerequisites: Economics 202 and Business Administration 202. Analysis of the management function of production control, with emphasis at the *micro level.* Ample use of the case study approach will develop an understanding of production planning, control, and decisions.

444. ORGANIZATION THEORY. (3) Prerequisites: Economics 322 and Business Administration 316. An application of traditional and behavioral concepts to business organization and decision making. Primarily a study of the process of decision making in the business organization including the more modern feed back systems of group behavior.

471. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration 373. Special advanced accounting problems and reports including partnership formation and dissolution, installment sales, consignments, branch accounting, consolidated statements, statement of affairs, receiver's accounts, realization and liquidation reports, actuarial science, estates, and trusts. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

473. GOVERNMENTAL ACCOUNTING. (3) Prerequisite: Business Administration 202. Fund accounting procedures for governmental units and institutions. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

475. AUDITING. (3) Prerequisite: Business Administration 202. Auditing theory and practice with emphasis on public

auditing. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

477. INCOME TAXATION FOR INDIVIDUALS. (3) Prerequisite: Business Administration 202. A study of federal and state income tax laws applying to individuals. The preparation of individual income tax returns is stressed in laboratory problems. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

478. ADVANCED INCOME TAXATION. (3) Prerequisites: Business Administration 202 and 477. A study of federal and state income tax laws applying to partnerships, corporations, estates and trusts; and estate, gift, and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

Terminal Programs in Business Administration

The terminal curricula are intended primarily for students who expect to complete their college program in two years or less. These programs are designed for two distinct types of students: (1) those who plan to go directly into employment, and (2) those who are studying for advanced positions with their present employer. Several of the courses taken in each program are transferable to the university parallel curriculum without a loss of semester credit hours.

BUSINESS ADMINISTRATION AND ACCOUNTING:

An A.A. degree in the terminal program in Business Administration and Accounting consists of the following courses: English 101[1], 102, 201, and either 202, 203, or 204; History 101, 102; Economics 201, 202; Political Science 201; Business Administration T101, T102, T121, T111, 380; and eighteen hours of electives.

A Representative Course of Study for a Terminal Program in Business Administration and Accounting Leading to the A.A. Degree

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Business Admin. T101	4	Business Admin. T102	4
Elective	6	Business Admin. T111	3
	—	Business Admin. T121	3
	16		—
			16

[1] Students making a sufficiently high placement score in English are exempted from English 101.

SOPHOMORE YEAR

English 201	3	English 202 or 203 or 204	3
Economics 201	3	Economics 202	3
Political Science 201	3	Business Admin. 380	3
Elective	6	Elective	6
	15		15

GENERAL BUSINESS AND SECRETARIAL SCIENCE:

An A.A. degree in the Terminal program in General Business and Secretarial Administration consists of the following courses: English 101[1], 102; History 101, 102; Business Administration T101, T102, T111; Business Education T155, T156, T157, T158, T255, T256, T257, T258, T261, T262; and twelve hours of electives.

A Representative Course of Study for a Terminal Program in General Business and Secretarial Science Leading to the A.A. Degree

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Business Admin. T101	4	Business Admin. T102	4
Business Education T155	2	Business Education T156	2
Business Education T157	3	Business Education T157	3
	15		15

SOPHOMORE YEAR

Business Admin. T111	3	Business Education T256	2
Business Education T255	2	Business Education T258	3
Business Education T257	3	Business Education T262	3
Business Education T261	3	Electives	6
Electives	6		14
	17		

[1] Students making a sufficiently high placement score in English are exempted from English 101.

Business Administration and Accounting[1]

T101. INTRODUCTION TO ACCOUNTING. (4) Theory of debits and credits; construction of the trial balance, work sheet, income statement, and balance sheet. Problems and materials characteristic of the single proprietorship form of business organization. Payroll accounting. Introduction to the field of data processing and the rapidly increasing role it plays in modern businesses. Three lecture hours and one laboratory period of two hours a week.

[1] Credits earned in Terminal Program courses in business administration, accounting, business education, and secretarial science are not acceptable for credit toward any A.B. program.

T102. INTRODUCTION TO ACCOUNTING. (4) Prerequisite: Business Administration T101. Accounting theory and types of internal and external uses of accounting data; valuation of assets and liabilities and determination of income; analysis of financial statements. Emphasis on partnership and corporation organizations. Introduction to job order cost and cost accounting. Three lecture hours and one laboratory period of two hours a week.

T103. SALESMANSHIP. (3) Fundamental principles of wholesale and retail selling. Analysis of sales propositions to a qualified customer.

T111. BUSINESS CORRESPONDENCE. (3) Prerequisite: English 101. Fundamentals of grammar. Vocabulary building. Survey of modern business letters and reports.

T121. BUSINESS MATHEMATICS. (3) Applications of mathematics to typical accounting, financial, and other business problems, including bank discounts, trade discounts, weighted averages, merchandise markup and turnover. Application of compound interest principles to sinking fund and amortization problems. Introduction to payroll accounting computations and income tax accounting for individuals.

T201. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration T102. Review of accounting procedures and consideration of alternative practices with a more detailed study of basic concepts and their applications. Comparative statements and analytical percents and ratios; analysis of working capital; accounting pertaining to capital structure of corporations. Two lecture hours and one laboratory period of two hours a week.

T202. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration T201. Classification and analysis of liabilities; application of accounting principles to income determination and valuation; correction of profits of prior periods, statement of sources and application of funds. Two lecture hours and one laboratory period of two hours a week.

T203. INCOME TAX ACCOUNTING FOR INDIVIDUALS. (3) Prerequisite: Business Administration T101. Intensive study of federal and state income tax laws and the preparation of individual income tax returns of all types. Emphasis on preparation of tax returns in laboratory work. Two lecture hours and one laboratory period of two hours a week.

T206. INCOME TAX ACCOUNTING FOR BUSINESSES. (3) Prerequisite: Business Administration T203. Income tax laws and the preparation of returns for partnerships, corporations,

estates, trusts, and proprietorships. Emphasis on preparation of state and federal returns in laboratory work. Two lecture hours and one laboratory period of two hours a week.

T207. COST ACCOUNTING. (4) Prerequisite: Business Administration T102. Introduction to cost accounting procedure and systems. Emphasis on job order and process costs. Laboratory work consists of practice set for each. Brief study of standard cost. Three lecture hours and one laboratory period of two hours a week.

T227. PERSONNEL MANAGEMENT. (3) Job instruction training to improve the supervisor's efficiency in training personnel; supervisory techniques for the supervisor in developing his ability to lead his personnel more efficiently; planned discussion and demonstrations of tested techniques in solving problems arising from human relations; employment techniques to assist personnel manager in interviewing, testing, making job analyses, and maintaining personnel records.

Business Education and Secretarial Science[1]

T155. BEGINNING TYPEWRITING. (2) Mastery of the keyboard. Emphasis on care of machine, its operating parts, simple tabulation, speed and accuracy building. No credit given to any student with previous college or high school typewriting. Three hours per week.

T156. BEGINNING TYPEWRITING. (2) Emphasis on typing business letters, tabulation, elemental composition at typewriter, speed and accuracy building. No credit given to any student with two semesters of college typewriting or two years of high school typewriting. Three hours per week.

T157. BEGINNING SHORTHAND. (3) Shorthand theory and speed building. No credit given to any student with previous college or high school shorthand. Three lecture hours and one laboratory period of two hours per week.

T158. BEGINNING SHORTHAND. (3) Emphasis on accuracy and development of speed in taking dictation. Three lecture hours and one laboratory period of two hours per week.

T255. ADVANCED TYPEWRITING. (2) Different styles of business letters, business and accounting reports, tabulated material, legal papers, and effective display of typed material. Three hours per week.

[1] Credits earned in Terminal Program courses in business administration, accounting, business education, and secretarial science are not acceptable for credit toward any A.B. program.

T256. ADVANCED TYPEWRITING. (2) Prerequisite: Business Education T255. Simulates office typing by use of practice set. Emphasis on accuracy, typewriter composition, details in making carbon copies, and format in applying for a position in business. Three hours per week.

T257. ADVANCED DICTATION. (3) Dictation and transcription with a thorough review of shorthand theory. Development of accuracy, speed, neatness, and comprehension. Three lecture hours and one laboratory period of two hours per week.

T258. ADVANCED DICTATION. (3) Prerequisite: Business Education T257. Continuation of the advanced skills in shorthand dictation. Intensive drills in production of mailable transcripts. Three lecture hours and one laboratory period of two hours per week.

T261. OFFICE MACHINES. (3) Prerequisite: Business Education 155 or equivalent. Emphasis on developmental skills in the use of at least four add listing machines, two calculators; accounting, posting, and photocopying machines. Experience gained on duplicating and other machines.

T262. OFFICE PRACTICE. (3) Prerequisites: Business Education 111, 156, 158, and 261. Office methods and procedures. Development of those characteristics and personality traits desirable and essential in the business office.

ECONOMICS

201. PRINCIPLES OF ECONOMICS. (3) The first semester of a one-year introductory course in Economics. Topics considered include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy.

202. PRINCIPLES OF ECONOMICS. (3) Prerequisite: Economics 201. The second semester of a one-year introductory course in economics. Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economics concentration and of agriculture, the theory of income distribution, international economic relationships, and comparative economic systems.

305. INDUSTRIAL RELATIONS. (3) Prerequisite: Economics 202. Systematic analysis of the sociological, economic, and political forces affecting and affected by the work environment. Special emphasis on market structure, the small group, the legal environment, and union structure.

315. MONEY AND BANKING. (3) Prerequisites: Economics 202 and Business Administration 201. The characteristics and functions of money in the modern economy. The operation of our banking system; monetary theory and policy.

322. PRICE THEORY AND INDUSTRIAL ORGANIZATION. (3) Prerequisite: Economics 202. A study of the manner in which prices are determined in various types of markets—competitive, monopolistic, oligopolistic, and monopolistically competitive—and of the characteristics of each. Consideration is given to the economics of the firm, and to the use of economic theory in making business decisions.

323. MACRO-ECONOMIC THEORY. (3) Prerequisite: Economics 322. An analysis of economic aggregates, primarily of income determination. Special emphasis on the development and understanding of current macro-economic models and sector analysis.

324. MANAGERIAL ECONOMICS. (3) Prerequsites: Economics 202 and Business Administration 202. A consideration of economic problems of particular importance to business firms, with a view to using tools of economic analysis in managerial decision making.

375. COMPARATIVE ECONOMIC SYSTEMS. (3) Prerequisite: Economics 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism, and communism.

416. PUBLIC FINANCE. (3) Prerequisite: Economics 315. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

471. INTERNATIONAL ECONOMICS. (3) Prerequisites: Economics 323 and Economics 315. The application of modern developments in price theory, employment theory, and monetary theory to international equilibrium, and world liquidity are also considered.

477. HISTORY OF ECONOMIC THOUGHT. (3) Prerequisite: Economics 323. The development of the great economic ideas of value, distribution, employment, etc., with special emphasis on the foundations of classic economic thought.

480. GOVERNMENT AND BUSINESS. (3) Prerequisite: Economics 202. A historical development of government regulation of business, utilizing the case study approach to develop an understanding of current philosophies and problems in this area.

EDUCATION

Associate Professor Vairo, Chairman; Assistant Professor Hackney

The Department of Education, within the framework of the liberal arts and science curricula, prepares elementary and secondary school teachers. Teacher education is conceived as a cooperative enterprise of the entire faculty. The preparation of teachers is seen as one of the important functions of a liberal arts college. The program's requirements are in addition to the requirements which must be met in a major field of concentration and the general requirements for the degree of Bachelor of Arts.[1] Courses offered in the teacher education program may be taken for undergraduate credit and may also be applied toward a teaching certificate or certificate renewal.

Admission

Qualified students are admitted to the program in the second term of the sophomore year. Candidates must have earned at least a 2.0 grade-point average on all courses attempted and have completed Psychology 201. Applications should be filed with the Chairman of the Department of Education during the preceding term. Those students accepted in the program should consult a representative of the Department of Education for long-range planning of their programs and during the registration period. The progress of all students in the professional sequence is reviewed each semester.

Student Teaching

For admission to Education 450 and 451 (Student Teaching) candidates must have above average scholastic ability, sound mental and physical health, good speech, and the approval of the Department of Education. The quality of scholarship in the teaching field or area of each candidate shall be at a level above that minimally required for graduation. Preparation for teaching consists of more than the satisfactory completion of a series of courses.

Students must complete all course requirements for a major and the general college requirements prior to the semester of student teaching. They must also attend a general conference preceding the semester in which they plan to do their student teaching. The date of the conference will be announced in Edu-

[1] In meeting the general requirements for the degree of Bachelor of Arts, students who plan to teach should complete (1) one course in each of two of the following areas: anthropology, economics, geography, political science, and sociology; (2) one course in American literature; and (3) Health Education 101 and Physical Education 101.

cation classes and posted on the Teacher Education bulletin board (outside room B113).

Professional Education Sequence

Elementary

Sophomore or Junior Year	Semester Hours
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Junior Year	
Education 303 Elementary Education I	3
Psychology 301 Child Psychology	3
*Senior Year—Block Schedule**	
Education 304 Philosophy of Education	3
Education 401 Elementary Education II	3
(Second semester of the senior year—first eight weeks)	
Education 450 Student Teaching: Elementary	6
(Second semester of the senior year—second eight weeks)	
Total—24	

* English 304 is included in the block schedule during the first eight weeks.

Secondary

Sophomore or Junior Year	
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Senior Year—Block Schedule	
Education 304 Philosophy of Education	3
Education 402 Methods of Teaching in Secondary School	3
Psychology 302 Adolescent Psychology	3
(Second semester of the senior year—first eight weeks)	
Education 451 Student Teaching: Secondary	6
(Second semester of the senior year—second eight weeks)	
Total—21	

National Teacher Examination

A candidate for an elementary or secondary teaching certificate in North Carolina must file evidence that the National Teacher Examination has been taken before a certificate may be issued. Both common and optional examinations (optional to be in one's major certificate field, if available) must be taken by the applicant. Students should consult with the Chairman of the Department of Education for further details.

Course Requirements

Candidates who plan to teach in elementary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in one of the academic fields (a minimum of 27 semester hours).

(3) A sequence in Elementary Education: Education 201, 303, 304, 401 and 450; Psychology 202 and 301. Twenty-one semester hours of these courses may be counted as related work.

(4) Subject-matter requirements for teacher certification.

Course	Semester Hours
Art 201, 302	4
English 303, 304	5
Geography 101, 102	7
Health Education 408	2
History 201, 202	6
Mathematics 403	3
Music 205, 307	4
Physical Education 409	2
Political Science 201	3

Candidates who plan to teach in secondary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in the academic field in which they plan to teach.

(3) A sequence in Secondary Education: Education 201, 304, 402 and 451; Psychology 202 and 302.

(4) Related work approved by the major department.

(5) All required courses for certification in the teaching field.

	Semester Hours
English	36
Language (Grammar, composition, rhetoric, history and analysis of the English Language, etc.)	12
Literature (English and American Literature)	12
Language and Literature Skills (Reading, interpretation of literature, oral and written exposition, the library, and journalistic writing)	6
Electives from the above areas	6

Mathematics 30

Calculus and Analytic Geometry 9
Algebra 6
Geometry 3
Electives in Mathematics 12

The algebra shall consist of one course in modern abstract algebra and one in linear algebra.

Modern Foreign Language 30

Grammar, Composition, and Phonetics 9
Literature 9
Language Skills 6
(Understanding, speaking, reading, and writing)
Literature, History, and Civilization of country being studied 6

(The 30-hour requirement in a language assumes that one has had two or more high school units in that language when entering college.)

Science 48

(1) Common Foundation 24
Mathematics 6
Six semester hours each from three of the following: 18
Biology
Chemistry
Physics
Earth Science

(2) A concentration in one area 20
Biology
Chemistry
Physics
Earth Science

(3) Electives 4

Certification in the individual science areas should give depth sufficient to assure reasonable competence as a teacher in the subject of concentration. A program for certification in a particular area (Biology, Chemistry, Physics, or Earth Science) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

Social Science 42

(1) History—American and World 21

(2) From three or more of the following 21

(There should be about equal emphasis on all areas chosen)

Anthropology

Economics

Geography

Political Science

Sociology

A program for certification in individual areas (Anthropology, Economics, Geography, History, Political Science, or Sociology) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

EDUCATION

201. INTRODUCTION TO EDUCATION. (3) An introductory course to acquaint students with the teaching profession. Considered are the role of the teacher, the clientele of the school, and the community. Emphasis placed on the historical and sociological orientation of the school in society.

303. ELEMENTARY EDUCATION I: ORGANIZATION AND CURRICULUM. (3) Prerequisites: Education 201, Psychology 202. Major consideration is given to the organization, administration, and curriculum of the elementary school. Emphasis placed on the role of the elementary school teacher in the total education program.

304. PHILOSOPHY OF EDUCATION. (3) Prerequisites: Education 201, Psychology 202. A study of the educational philosophies of the contemporary period and the basic assumptions upon which statements about modern education rest. Extensive readings in text and source materials.

401. ELEMENTARY EDUCATION II: METHODS AND MATERIALS. (3) Prerequisite: Education 303. Major consideration is given to the methods and materials used in teaching at the various grade levels in the elementary school. Emphasis placed on the preparation of lesson plans and units.

402. METHODS OF TEACHING IN SECONDARY SCHOOL. (3) Prerequisites: Education 201, Psychology 202. Aims, methods, and materials of teaching a subject at the secondary level. Also considered are the following: organization of the curriculum, pupil promotional patterns, and classroom management.

402-a English
402-b Foreign Languages
402-c Mathematics
402-d Sciences
402-e Social Sciences

403. PRINCIPLES OF GUIDANCE. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to increase the teacher's knowledge and understanding of the meaning, scope, and principles of guidance in the school setting. A survey course planned to give perspective for future work in guidance.

404. SEMINAR IN EDUCATIONAL RESEARCH. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to assist teachers to conduct and evaluate research studies. Basic research techniques will be examined. Each student will develop a limited research project.

405. SEMINAR FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite: employment as an elementary school teacher or special permission of the Department of Education. Contemporary problems and issues confronting teachers in their actual school experience. The activities of the course will vary with the needs of the students.

406. SEMINAR FOR SECONDARY SCHOOL TEACHERS. (2) Prerequisite: employment as a secondary school teacher or special permission of the academic department. Study in subject matter content related to the student's teaching field.

406-a English
406-b Foreign Languages
406-c Mathematics
406-d Sciences
406-e Social Sciences

450. STUDENT TEACHING: ELEMENTARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in an elementary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

451. STUDENT TEACHING: SECONDARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in a secondary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

ENGINEERING

Professor Barnette, Chairman; Associate Professors Stoughton, Wayne; Assistant Professor Cebeci

The engineering department provides an undergraduate professional education in the fields of Electrical Engineering and Mechanical Engineering. The curricula are designed to serve both the potential graduate student who will pursue a career in research or teaching, and the student who will pursue a career as a professional engineer in industry, business, or consulting. Both of these objectives require a substantial curriculum content in the humanities, the physical sciences, the engineering sciences, mathematics, and engineering design.

The engineering curricula prescribed by the faculty of the University of North Carolina at Charlotte give thorough attention to all of these essential areas of content. In order to accomplish this, a total of 139 semester hours of work is required for graduation. The curricula which are shown in detail on the following pages, are outlined as four year programs. Students who enter the University with strong college board scores, and qualify through the entrance examination in mathematics to enroll in Mathematics 141, can expect to schedule their work on an eight semester basis, as shown. Students who are required to enroll in Mathematics 103 and 104, on a basis of the entrance test in mathematics, will not take the courses exactly as listed, unless they begin their program in the summer and complete these preliminary mathematics requirements in advance of their first semester of regular study. Some students may need to take lighter loads than those which are shown, and to attend school one or more summer sessions, or an extra semester, to complete requirements. This is optional with the student, and each one is encouraged to take a load which is optimum for his individual case.

THE ELECTRICAL ENGINEERING CURRICULUM

The curriculum in Electrical Engineering is based upon a core of sequence courses in four branches of electrical science, namely: circuit theory, electric and magnetic field theory, electronics, and electro-mechanical devices. These sequences occur in the sophomore and junior years, except for the last named, which is in the senior year. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, mathematics courses, and supporting physical and engineering science courses parallel the four electrical science stems.

The electrical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology. At the same time,

the student has an opportunity to develop a degree of technical specialization by means of these electives.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected to form a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Electrical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Economics 201*	3
	15		17

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EE 211 Networks	3	EE 212 Networks	3
EM 291 Mechanics	3	EE 252 Laboratory	1
E 111 Graphics	2	EM 214 Mechanics	3
English 205	3	Elective (Hum. or S.S.)	3
	19		18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
EE 311 Transients	3	EE 312 A.C. Circuits	3
EE 321 E. & M. Fields	3	EE 332 Electronics	3
EE 351 Laboratory	1	EE 352 Laboratory	1
ME 311 Thermodynamics	3	ME 392 Heat Power	3
Physics 311	3	Elective (Hum. or S.S.)	6
Elective (Hum. or S.S.)	3		19
	19		

SENIOR YEAR

EE 421 E. & M. Fields	3	EE 442 Machinery	3
EE 431 Electronics	3	EE 452 Laboratory	1
EE 441 Electro. Devices	3	EE Electives	6
EE 451 Laboratory	1	Electives (Tech. or Hum.)	6
EE Elective	3		16
Elec. (Tech. or Hum.)	3		
	16		

Note: The 9 semester hours of Technical or Humanities Electives may be used:

1) To develop a particular area of interest within the humanities.
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology, etc.;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

ELECTRICAL ENGINEERING COURSE DESCRIPTIONS

EE 211. RESISTIVE NETWORKS I. (3) Prerequisite: Math 141. Introduction to linear oriented graphs. Kirchoff's voltage and current equations. Definition and properties of important subgraphs: seg, circuit, tree, cotree, etc. Formation of seg and circuit matrices; the fundamental seg and circuit matrices. Definition and criteria for forming the seg and circuit basis matrices. Characterization of the network elements. Combination of the seg, circuit, and terminal equations into the primary system. Formal derivation of the mesh, node, and branch systems of equations. Formulation of the secondary systems of equations by matrix techniques. Power and energy functions. Effective and average values of time functions. Three hours.

EE 212. RESISTIVE NETWORKS II. (3) Prerequisite: EE 211. Secondary systems of equations directly from the graph (mesh, branch, and node). Driving point functions. Network theorems: superposition, reciprocity, Thevenin's and Norton's equivalents, etc., Delta and wye equivalents of three terminal R-graphs. The v(t)-i(t) interrelations for four terminal R-graphs: open, and short circuit, cascade, and hybrid parameters. Balanced and symmetric networks: tee, pi, and lattice equivalents. Bartlett's bisection theorem. Image and scattering parameters, cascaded networks, insertion function, and attenuators. N-terminal R-graphs. Three hours.

EE 252. LABORATORY I. (1) Corequisite EE 212. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to illustrate the theory introduced in the paralleling or preceding courses. The laboratory sequence will be measurements-oriented and will develop increasing sophistication of experimental technique. Three hours.

EE 311. TRANSIENTS. (3) Prerequisite: EE 212. The study of the Laplace transform theorems, concepts, properties and

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* Another 200 level course in economics may be substituted with the consent of both departments.

techniques, and its application to networks. The formulation of network equations and the investigation of the transient and steady state solutions of these equations for networks with step, pulse, periodic, and sinusoidal driving functions. Introduction to complex variables, residues, and partial fractions. Initial conditions, switching and transition transients. The vector transform as an introduction to the sinusoidal steady state. Three hours.

EE 312. ALTERNATING CIRCUIT THEORY. (3) Prerequisite: EE 311. Analysis and investigation of sinusoidal circuits: series, parallel, network theorems, matching, coupled circuits, etc., mesh, branch and node equations of RLCM multimesh networks in vector notation, both through matrix formulation and direct formulation from the graph. The Fourier series and its application to networks. Two and four terminal network equivalences, the methods for and the restrictions on their interconnections. Filter theory: conventional and image parameter methods. Three hours.

EE 321. INTRODUCTION TO ELECTROMAGNETIC FIELDS. (3) Prerequisite: EE 212. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations. Three hours.

EE 332. FUNDAMENTALS OF ELECTRONICS AND SEMICONDUCTORS. (3) Prerequisite: EE 311. A study of fundamental concepts and principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices: thyratrons, ignitrons, etc. Photoelectric devices. Amplifier and oscillator characteristics and their configurations. Three hours.

EE 351. LABORATORY II. (1) Prerequisites: EE 252, EE 311, and 321 parallel. A continuation of EE 252, involving experiments in the areas of circuit theory and fields. Three hours.

EE 352. LABORATORY III. (1) Prerequisites EE 312, and EE 332 parallel. A continuation of EE 351 involving experiments in the areas of circuit theory, electronics, and semiconductors. Three hours.

EE 400. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. (Variable credit 1-4 hours) Prerequisite: Senior standing in Electrical Engineering. This course will be devoted to

specific new areas which are emerging in the field of professional electrical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EE 411. NETWORK SYNTHESIS. (3) Prerequisite: EE 312. Positive real functions, their properties and methods of testing. Driving point synthesis of LC, RC, and RL networks into Foster and Cauer networks. One terminal pair RLC network synthesis using the Brune and Bott-Duffin methods. Realization of two terminal pair networks by ladders, Cauer networks, lattices and Darlington networks. Approximation methods. Three hours.

EE 412. NON-LINEAR ANALYSIS. (3) Prerequisite: EE 312. Solutions of non-linear problems using numerical methods, graphical methods, phase plane plots, analysis of singular points, and analytical techniques. The use of analogs and duals for writing equations. The use of the analog computer and digital computer. Three hours.

EE 421. ELECTROMAGNETIC WAVES. (3) Prerequisite: EE 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial lines and waveguides. Three hours.

EE 422. RADIATION AND MICROWAVE THEORY. (3) Prerequisite: EE 421. A study of radiation into free space; antenna theory. Microwave theory: components and junctions, methods of feeding, matching, terminations and generation. Microwave amplifiers and oscillators. Introduction to Laser theory. Three hours.

EE 431. ELECTRONICS. (3) Prerequisite: EE 332. A study of electronic and semiconductor devices: transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized transistor oscillator analysis. Three hours.

EE 432. COMPUTER ELECTRONICS. (3) Prerequisite: EE 431. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits. The in-

troduction to microwave electronics, principles of electron devices including magnetrons, klystrons, traveling wave tubes and particle accelerators. Three hours.

EE 441. ELECTROMAGNETIC DEVICES. (3) Prerequisites: EE 312, EE 321. Magnetic circuits. Transformer principles, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns. Three hours.

EE 442. ELECTRIC MACHINERY. (3) Prerequisite: EE 441. Direct-current machines, induction machines. Machines in control systems. Synchronous machines. Fractional horsepower motors. Three hours.

EE 446. ELECTRIC POWER SYSTEM ANALYSIS. (3) Prerequisites: EE 312, EE 321. Transmission lines: constants, circuit representations, equations, circle diagrams. System representations, network equations and solutions. Load flow studies, economic operation, fault studies, stability studies. Three hours.

EE 451. LABORATORY IV. (1) Prerequisites: EE 312, EE 332, EE 352. A continuation of EE 352 involving experiments in the areas of circuit theory, electronics, and electromagnetics. Three hours.

EE 452. LABORATORY V. (1) Prerequisite: EE 451. A continuation of EE 451 involving experiments in electromagnetics, devices, and machines. Three hours.

EE 472. AUTOMATIC CONTROL SYSTEMS. (3) Prerequisite: EE 431. A basic study of closed-loop systems utilizing frequency response analysis. Design techniques are developed for desired performance criteria. Electrical, mechanical, and hydraulic systems are considered. Analog computer use in system studies. Three hours.

THE MECHANICAL ENGINEERING CURRICULUM

The curriculum in Mechanical Engineering is based upon sequences of engineering science courses in heat power, engineering mechanics, and mechanical design. These occur principally in the sophomore and junior years. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, physical science courses, and electrical science courses supplement the mechanical engineering science and design stems through the junior year.

The mechanical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected from a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Mechanical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Economics 201**	3
	15		17

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EM 211 Mechanics I	3	EM 212 Mechanics II	3
ME 261 Engin. Materials	3	EM 214 Mechanics of Mat.	3
E 111 Graphics	2	E 112 Graphics	1
English 201 or 205	3	Elective (Hum. or S.S.)	3
	19		18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
ME 311 Thermodynamics I	3	EM 312 Fluid Mechanics	3
ME 321 Theory of Machines	3	ME 322 Mech. Vibrations	3
ME 351 Laboratory I	1	ME 312 Thermodynamics II	3
EE 391 Prin. of EE I	4	ME 352 Laboratory II	1
Elective (Hum. or S.S.)	3	EE 392 Prin. of EE. II	4
	17	Elective (Hum. or S.S.)	3
			20

SENIOR YEAR

ME 411 Heat and Mass Trans.	3	ME 422 Design II	3
ME 421 Design I	3	ME 452 Laboratory IV	1
ME 451 ME Laboratory III	1	ME Electives*	7
ME Elective*	3	Elective (Tech. or Hum.)	6
Physics 311	3		
Elect. (Tech. or Hum.)	3		17
	16		

* Two of the ME Electives are to be chosen from the design area and one from the heat power area, or vice versa.

** Another 200 level course in economics may be substituted with the consent of both departments.

Note: The 9 semester hours of Technical and Humanities Electives may be used:

1) To develop a particular area of interest within the humanities;
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

MECHANICAL ENGINEERING

ME 261. ENGINEERING MATERIALS. (3)

ME 311. THERMODYNAMICS I. (3) Prerequisites: Phys. 202, Math 242. First and second law of thermodynamics. Work and heat. Entropy and Clausius inequality. Ideal and real gases. Nonreactive mixtures of gases. Availability and irreversibility. Vapor and gas power cycles.

ME 312. THERMODYNAMICS II. (3) Prerequisite: ME 311. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to statistical thermodynamics.

ME 321. THEORY OF MACHINES. (3) Prerequisite: EM 212. Application of dynamics to mechanical systems. Static-force analysis. Dynamic-force analysis of plane motion and space mechanisms.

ME 322. MECHANICAL VIBRATIONS. (3) Prerequisites: EM 212, Math 371. Study of vibratory motion, including one or more degrees of freedom, with and without damping.

ME 351. ME LAB I. (1) Corequisites: ME 311, EM 212, EM 232. Theory and principles of instrumentation. Measurement of thermodynamic properties, flow properties, and strain. Preparation of Engineering report. No lecture hours. One laboratory period of three hours a week.

ME 352. ME LAB II. (1) Prerequisite: ME 351. Corequisites: ME 312 and EM 362. Continuation of ME 351. Analysis of simple systems. No lecture hours. One laboratory period of three hours a week.

ME 392. THERMODYNAMICS. (3) Prerequisite: ME 311. A continuation of ME 341 for non-Mechanical Engineering students. Thermodynamics of fluid flow, heat transfer.

ME 400. SPECIAL TOPICS IN MECHANICAL ENGINEERING. (Variable credit 1-4) Prerequisite: Senior standing in Mechanical Engineering. This course will be devoted to specific

new areas which are emerging in the field of professional mechanical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ME 411. HEAT AND MASS TRANSFER. (3) Prerequisites: EM 312, Math 372. A study of the fundamental laws of heat transfer by conduction, convection and radiation.

ME 412. GAS DYNAMICS. (3) Prerequisites: ME 311, EM 312. Compressible flow equations, isentropic flow, normal shock waves. Fanno and Rayleigh line flows.

ME 413. EXPERIMENTAL STRESS ANALYSIS. (3) Prerequisite: EM 214. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on electrical strain gages and instrumentation; brittle coatings and photoelasticity.

ME 414. REFRIGERATION. (3) Prerequisite: ME 311. Vapor compression, absorption and low temperature refrigeration cycles and systems.

ME 415. ENERGY CONVERSION I. (3) Prerequisites: ME 312, EM 312, ME 411. Application of the basic concepts of thermodynamics, heat transfer and fluid flow to power plant problems.

ME 416. ENERGY CONVERSION II. (3) Prerequisite: ME 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, therminoic converters, solar and fuel cells.

ME 421. DESIGN I. (3) Prerequisite: ME 322. Senior standing. Technical application of the basic principles of the mechanical sciences to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

ME 422. DESIGN II. (3) Prerequisite: ME 421. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

ME 451. ME LAB III. (1) Prerequisite: ME 352 and Senior standing. The selection of appropriate instrumentation and the experimental analysis of a predetermined small scale engineering

system. No lecture hours. One laboratory period of three hours a week.

ME 452. ME LAB IV. (1) Prerequisite: ME 451. Continuation of ME 451.

ME 472. AUTOMATIC CONTROLS. (3) Prerequisite: Senior standing. Closed-loop control systems. Application of transfer function analysis.

ENGINEERING ORIENTATION AND GRAPHICS

E 100. INTRODUCTION TO ENGINEERING. (1) Survey of the professional fields in engineering, the work of the engineer, requirements in training and character, professional ethics. A preview of opportunities for careers in engineering.

E 111. ENGINEERING GRAPHICS. (2) Major areas in this course include: instrument practice, geometric construction, orthographic projection, sections, auxiliary views, pictorial drawing, free hand sketching and dimensioning, curves, charts, graphs, graphical solution of problems. Two laboratory periods of three hours each a week.

E 112. ENGINEERING GRAPHICS. (1) Prerequisite: Engineering 111. True length, true slope and line as a point, edge view and true size of a plane, shortest distance between lines, a line piercing a plane, intersection of planes, dihedral angle, shortest distances to a plane, angle between a line and a plane, revolution, development of surfaces, intersection of solids, and other miscellaneous problems. One laboratory period of three hours each week.

ENGINEERING MECHANICS

EM 211. MECHANICS I. (3) Corequisites: Math 241, Physics 201. Force, moment, and couples. Resultant and equilibrium of a force system. Centroids. Moments of inertia. Principle of virtual work. Elements of kinematics.

EM 212. MECHANICS II. (3) Prerequisite: EM 211, corequisite: Math 242. Motion of particles and rigid bodies. Relation between force, mass, and acceleration. Work and energy. Impulse and momentum. Conservation of linear and angular momentum.

EM 214. MECHANICS OF MATERIALS. (3) Prerequisite: EM 211. Fundamentals of stress and strain. Shear and moment diagrams. Torsion. Stresses in beams. Beam deflections. Statically indeterminate beams. Columns.

EM 291. MECHANICS. (3) Corequisites: Math 241, Physics 201. A combined course in statics and dynamics for non-mechanical Engineering students.

EM 312. FLUID MECHANICS. (3) Prerequisites: ME 311, Math 242. Properties of fluids, fluid statics, derivation and application of equations for conservation of mass, energy, linear momentum and angular momentum. Dimensional analysis and dynamic similitude. Viscous effects. Ideal fluid flow.

CIVIL ENGINEERING

CE 211. SURVEYING I. (3) Prerequisite: Mathematics 141. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; construction surveys; earthwork computations; route surveys and design; simple, compound, parabolic, and spiral curves; chaining equations. One lecture hour, two problem solving hours, and one laboratory period of three hours a week.

CE 212. SURVEYING II. (3) Prerequisite: Civil Engineering 211. Continuation of Civil Engineering 211. One lecture hour, two problem solving hours and one laboratory period of three hours a week.

Review Class for North Carolina Engineering Registration Examination

The forty-two hours of work in this course include a review of the fundamentals of engineering.

ENGLISH

Professors Wallace, Chairman, Denny (Emeritus); Associate Professors Fore, McCall, Moose; Assistant Professors Ellis, Stovall; Instructors Bush, Draper, Foster, Frederickson, Fuhrman, Shapiro

A major in English leading to the B.A. degree (except for students in the elementary teachers certification program) consists of 30 hours of courses above English 102. Required courses are 201, 202 (6); Shakespeare (3); one English and one American period course (6); one upper division course in language or composition (3); the Senior Colloquium (3); and 9 additional hours within the department. Majors in English must take 3 hours in the history of England. Related work consists of 15 semester hours.

A major in English for students in the elementary teachers certification program consists of 24 hours of English beyond English 102, including English 201, 202 (6); Shakespeare (3);

English Grammar (3); one English and one American period course (6); the Senior Colloquium (3); and 3 additional hours within the department. Majors in the elementary certification program must take 3 hours in the history of England. Related work consists of 15 hours.

101. ENGLISH COMPOSITION. (3) Intensive practice in theme writing, especially exposition, and an introduction to scientific study of the language. Brief review of grammar.

102. ENGLISH COMPOSITION. (3) Prerequisite: English 101 or advanced placement. Critical writing, collateral reading, and introduction to literary study.

201. ENGLISH LITERATURE. (3) Prerequisite: English 102. Intensive study of the masterpieces of British literature in chronological sequence before 1800. Not open to students with credit for English 205.

202. ENGLISH LITERATURE. (3) Prerequisite: English 201 or 205. British literary masterpieces since 1800.

203. MASTERPIECES OF MODERN FICTION. (3) Prerequisite: English 201 or 205. Readings in selected novels and short stories written since 1850. Not open to majors.

204. MAJOR AMERICAN WRITERS. (3) Prerequisite: English 201. Extensive readings in six to eight authors. Recommended for non-English majors who are working for teachers certificates. Not open to majors.

205. READINGS IN WESTERN LITERATURE. (3) Prerequisite: English 102. Ancient, British, and American writings, emphasizing basic themes and literary forms. Not open to students with credit for English 201.

NOTE: Prerequisite for 300 and 400 level courses: six semester hours of English on the 200 level, unless otherwise specified.

301. MASTERPIECES OF EUROPEAN LITERATURE. (3) Reading of complete Greek and Latin works in translation: epic, drama, history, oratory, and lyric poetry.

302. MASTERPIECES OF EUROPEAN LITERATURE. (3) Readings in Dante, Erasmus, Montaigne, Moliere, Dostoevsky, Tolstoy, and others.

303. CHILDREN'S LITERATURE. (2) Critical study of representative reading materials and approaches to literature appropriate for elementary school children. Does not count toward an English major.

304. READING AND THE LANGUAGE ARTS. (3) Emphasis on oral and written communication, with attention also to the teaching of reading; appraisal of current programs and methods. Does not count toward an English major.

305. ADVANCED COMPOSITION. (3) The writing of essays, criticisms, various forms of exposition, and short narratives.

311. CHAUCER. (3) *The Canterbury Tales, Troilus and Criseyde,* and selected minor works.

312. SHAKESPEARE. (3) Twelve of his major plays from the comedies, tragedies, and histories.

313. MILTON. (3) The major poems and selections from the minor works.

321. THE EARLIER SEVENTEENTH CENTURY. (3) The major writers from the beginning of the century through Milton and Bunyan.

323. ENGLISH LITERATURE, 1660-1785. (3) Poetry and prose from Dryden through Johnson; collateral readings in drama and the novel.

324. THE ROMANTIC ERA, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge, and other major poets.

326. THE VICTORIAN ERA, 1832-1900. (3) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, and Newman.

327. BRITISH LITERATURE SINCE 1890. (3) Emphasis on poetry and non-fiction prose of the chief writers and movements.

331. THE ENGLISH LANGUAGE. (3) Origins and development of the English language and its present usage.

332. ENGLISH GRAMMAR. (3) English grammar with particular emphasis on modern usage; the relations of grammar and composition.

341. AMERICAN LITERATURE, 1820-1890. (3) The chief writers and literary movements from Irving through Whitman.

342. AMERICAN LITERATURE SINCE 1890. (3) The chief writers and movements from Howells to the present.

343. THE AMERICAN NOVEL OF THE NINETEENTH CENTURY. (3) Major novelists and traditions before Henry James.

401. LITERARY CRITICISM. (3) Prerequisite: fifteen hours of English. The major schools and individual critics; readings in the history of criticism and composition of critical papers.

421. THE ENGLISH NOVEL BEFORE SCOTT. (3) Major writers and traditions, Defoe through Jane Austen.

423. THE MODERN NOVEL. (3) Eight representative British and American novels showing the philosophies and techniques affecting English and American fiction, from Hardy to the present.

431. ENGLISH DRAMA BEFORE 1642. (3) Representative plays with emphasis on the chief Elizabethan, Jacobean, and Caroline dramatists from Lyly to Ford, excluding Shakespeare.

441. COLONIAL AND EARLY AMERICAN LITERATURE. (3) American literature from Colonial times through Washington Irving.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental Chairman. Lectures and student reports chronologically arranged.

FOREIGN LANGUAGES

Professor Macy, Chairman; Associate Professors Hoyle, Slechta; Assistant Professors Gabriel, Lopez, Saman; Instructors Bevier, Brooks, Luski

Laboratory

All foreign language courses at the 100 and 200 level, as well as those numbered 301 and 302, meet for three lecture hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

See pages 39-41 for general foreign language requirements for degree candidates.

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Science[1]	4	Science	4
Foreign Language[2]	3	Foreign Language	3
	16		16

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 202 (203)	3
Social Science	3	Social Science	3
Science	4	Science	4
Elective	3	Elective	3
Foreign Language	3	Foreign Language	3
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language	3	Foreign Language	3
Foreign Language	3	Foreign Language	3
Elective	3	Elective	6
Elective	3	Related Work	3
Related Work[3]	3	Related Work	3
	15		18

SENIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 4xx	3	Foreign Language 4xx	3
Foreign Language 4xx	3	Foreign Language 492	3
Elective	3	Elective	3
Elective	3	Elective	3
Related Work	3	Related Work	3
	15		15

Total Hours: 127

[1] Total required: 16 hours; at least 4 hours from each group:
Group A: Chemistry, Physics, Geology, Geography 101;
Group B: Biology, Psychology 201.

[2] If student presents no high school language for admission, the sequence of his Foreign Language courses would be: 101, 102, 201, 202, 301, 302, 303, 304; however, he will not receive credit for 101 and 102. If student presents at least two years of high school foreign language, and places by test in 201, his sequence of courses would be: 201, 202, 301, 302, 303, 304.

[3] Related Work totaling 18 hours, to be approved by the departmental chairman, may be selected from: Fine Arts, History, English Literature, Linguistics, Political Science, Economics, Anthropology, Philosophy, or additional science courses.

FRENCH

A major in French leading to the B.A. degree consists of French 201, 202, 301, 302, 303, 304, and 12 hours of French courses on the 400 level, which must include French 492. In addition, 18 hours of related work will be required.

101. ELEMENTARY FRENCH. (3) Fundamentals of French grammar, with particular stress on correct pronunciation and self-expression through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY FRENCH. (3) Prerequisite: French 101. Continuation of French 101. Graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE FRENCH. (3) Prerequisite: French 102. Readings and conversation on French civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE FRENCH. (3) Prerequisite: French 201. Readings and conversation on French civilization. Selected readings in French prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: French 202. For prospective teachers of French and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: French 301. Continuation of French 301. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF FRENCH LITERATURE TO 1800. (3) Prerequisite: French 202. Selected readings in prose and poetry from the Middle Ages to 1800. Emphasis on each literary movement. Book reports on collateral readings.

304. SURVEY OF FRENCH LITERATURE SINCE 1800. (3) Prerequisite: French 202. Continuation of French 303. Book reports on collateral readings.

321. SELECTED READINGS IN FRENCH LITERATURE I. (3) Prerequisite: French 202. Book reports on collateral readings.

322. SELECTED READINGS IN FRENCH LITERATURE II. (3) Prerequisite: French 202. Continuation of French 321. Book reports on collateral readings.

401. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3) Prerequisite: two 300-level courses. Collateral readings.

403. FRENCH LITERATURE OF THE NINETEENTH CENTURY. (3) Prerequisite: two 300-level courses. Collateral readings.

405. THE AGE OF ENLIGHTENMENT. (3) Prerequisite: two 300-level courses. Collateral readings.

408. THE CLASSICAL PERIOD. (3) Prerequisite: two 300-level courses. Collateral readings.

414. FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. (3) Prerequisite: two 300-level courses. Collateral readings.

416. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. (3) Prerequisite: two 300-level courses. Collateral readings.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental chairman. Comprehensive review of the major field. Collateral readings and term papers. Required of all French majors.

GERMAN

101. ELEMENTARY GERMAN. (3) Fundamentals of grammar, with particular stress on correct pronunciation and self-expression through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY GERMAN. (3) Prerequisite: German 101. Continuation of German 101, and graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE GERMAN. (3) Prerequisite: German 102. Readings and conversation on German civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE GERMAN. (3) Prerequisite: German 201. Readings and conversation on German civilization. Selected readings in German prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

221. GRADED SCIENTIFIC GERMAN. (3) Prerequisite: German 202. Book reports on graded collateral readings. Three lecture hours and one laboratory period of one hour a week.

222. GRADED SCIENTIFIC GERMAN. (3) Prerequisite: German 221. Continuation of German 221. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: German 202. For prospective teachers of German, and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: German 301. Continuation of German 301. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202. General introduction to German literature from the Middle Ages to the Classical Period. Book reports on collateral readings.

304. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202. German literature since classicism. Book reports on collateral readings.

311. SELECTED READINGS IN GERMAN LITERATURE I. (3) Prerequisite: German 202. Book reports on collateral readings.

312. SELECTED READINGS IN GERMAN LITERATURE II. (3) Prerequisite: German 202. Book reports on collateral readings.

321. ADVANCED SCIENTIFIC GERMAN. (3) Prerequisite: German 202. Readings and translations of German publications in the field of science with emphasis on the student's major field of concentration.

322. ADVANCED SCIENTIFIC GERMAN. (3) Prerequisite: German 202. Readings and translations of German publications in the field of concentration.

401. GERMAN CLASSICISM. (3) Prerequisite: two 300-level courses. Storm and stress. Early classicism. Book reports on collateral readings.

402. GERMAN ROMANTICISM. (3) Prerequisite: two 300-level courses. Late classicism and romanticism. Book reports on collateral readings.

407. GERMAN POETRY FROM HOELDERLIN TO THE PRESENT. (3) Prerequisite: two 300-level courses. An analysis of the chief lyric poets, literary movements, and types of German poetry.

414. TWENTIETH CENTURY GERMANY AS REFLECTED IN LITERATURE. (3) Prerequisite: two 300-level courses. Political and social events from World War One to the present day, as reflected in German literature. Book reports on collateral readings.

RUSSIAN

101. ELEMENTARY RUSSIAN. (3) Fundamentals of Russian grammar, with particular stress on correct pronunciation

and self-expression, through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY RUSSIAN. (3) Prerequisite: Russian 101. Continuation of Russian 101. Graded readings. Three lecture hours and one laboratory period of one hour a week.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, and 12 hours of Spanish courses on the 400 level, which must include Spanish 492. In addition, 18 hours of related work will be required.

101. ELEMENTARY SPANISH. (3) Fundamentals of Spanish grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY SPANISH. (3) Prerequisite: Spanish 101. Continuation of Spanish 101, and graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 102. Readings and conversation on Spanish civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 201. Readings and conversation on Spanish civilization. Selected readings in Spanish prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: Spanish 202. For prospective teachers of Spanish, and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: Spanish 301. Continuation of Spanish 301. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF SPANISH AND SPANISH-AMERICAN LITERATURE TO 1700. (3) Prerequisite: Spanish 202. Book reports on collateral readings. Required of Spanish majors.

304. SURVEY OF SPANISH AND SPANISH-AMERICAN LITERATURE SINCE 1700. (3) Prerequisite: Spanish 202. Required of Spanish majors.

321. SELECTED READINGS IN SPANISH LITERATURE I. (3) Prerequisite: Spanish 202. Book reports on collateral readings.

322. SELECTED READINGS IN SPANISH LITERATURE II. (3) Prerequisite: Spanish 202. Book reports on collateral readings.

401. THE GENERATION OF 1898 AND THE 20TH CENTURY I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

402. THE GENERATION OF 1898 AND THE 20TH CENTURY II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

403. EIGHTEENTH AND NINETEENTH CENTURY SPANISH LITERATURE I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

404. EIGHTEENTH AND NINETEENTH CENTURY SPANISH LITERATURE II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

405. THE GOLDEN AGE OF SPANISH LITERATURE I. (3) Prerequisite: two 300-level courses. From Garcilaso de la Vega to Calderon de la Barca. Book reports on collateral readings.

406. THE GOLDEN AGE OF SPANISH LITERATURE II. (3) Prerequisite: two 300-level courses. From Garcilaso de la Vega to Calderon de la Barca. Book reports on collateral readings.

409. SPANISH-AMERICAN LITERATURE I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

410. SPANISH-AMERICAN LITERATURE II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing, and permission of the departmental chairman. Comprehensive review of the major field. Book reports on collateral readings. Term papers. Required of all Spanish majors.

GEOGRAPHY

Instructor Gibbs

101. PHYSICAL GEOGRAPHY. (4) Land forms, mineral resources, climate, vegetation, soils, and water from the point of view of their significance to economic activities. Three lecture hours and one laboratory period of two hours a week.

102. REGIONAL WORLD GEOGRAPHY. (3) Regional geography dealing with various peoples of the earth and how they

and their activities are influenced by topography, climate, and natural resources. Three lecture hours a week.

201. ECONOMIC GEOGRAPHY. (3) Prerequisite: Geography 101 or Geography 102. Study of the products of agriculture, commerce and industry and the conditions which affect their production, exchange and consumption.

301. GEOGRAPHY OF LATIN AMERICA. (3) Prerequisite: Geography 101 or Geography 102. Basic human and physical differences from place to place which affect economic, social, and political conditions. Cultural and economic relations with Europe and the United States. Three lecture hours a week.

GEOLOGY

Instructor Gibbs

201. PHYSICAL GEOLOGY. (4) The nature and occurrence of rocks and minerals, together with crustal features of the earth's surface. Emphasis on earth phenomena. Three lecture hours and one laboratory period of two hours a week.

202. HISTORICAL GEOLOGY. (4) Prerequisite: Geology 201, Geography 101, or Biology 101. Emphasis on stratigraphic and fossil history of the earth as found in the earth's crust together with the necessary information on both plant and animal kingdoms to trace the evolution of life down through the ages. Three lecture hours and one laboratory period of two hours a week. Two or more one-day field trips to be arranged.

301. MINERALOGY. (4) Prerequisites: Chemistry 102; Geology 201. Identification of the common and economically important minerals by means of the physical properties; chemical and blow-pipe tests. Principles of crystallography. Three lecture hours and one laboratory period of three hours a week.

302. GEOMORPHOLOGY. (4) Prerequisite: Geology 201. Major earth features and their origin with particular reference to North America. Three lecture hours and one laboratory period of two hours a week.

HEALTH EDUCATION

101. HEALTH EDUCATION. (1) A general introductory course. Basic ideas of human anatomy, physiology, and chemistry are applied toward an understanding of human health problems.

408. HEALTH EDUCATION LABORATORY. (2) Prerequisite: Education 303. Health instruction, principles of health teaching for the elementary grades.

HISTORY AND POLITICAL SCIENCE

Professors Rieke, Chairman, Hall, Winningham; Associate Professors Abernathy, Blackwelder; Assistant Professors Freeman, Morrill, Ploger, Robbins, Wade; Instructors Furlow, Jackson

HISTORY

A major in History leading to the B.A. degree, except for students in the elementary certification program, consists of 32 semester hours of history, including Modern Western Civilization (6), American History (6), and Tutorial in History (2). Related work consists of 15 semester hours.

A major in History leading to the B.A. degree for students in the elementary certification program consists of 27 hours of history, including Modern Western Civilization (6) and American History (6). Related work consists of 21 hours as outlined in the general requirements of the elementary certification program.

Except by special permission, no student may enroll in a 300-400 level course in U. S. History without Junior-Senior standing and credit for History 201-202 or their equivalent.

Except by special permission, no student may enroll in a 300-400 level course in any other field without Junior-Senior standing.

101. MODERN WESTERN CIVILIZATION TO 1815. (3) This course commences with a broad survey of Ancient and Medieval contributions to Modern Western Civilization and then treats intensively the development of Western Civilization from the Renaissance to 1815.

102. MODERN WESTERN CIVILIZATION FROM 1815 TO THE PRESENT. (3) Prerequisite: History 101. Continuation of History 101 with greater emphasis on developments outside the Atlantic community of Western Civilization.

201. AMERICAN HISTORY. (3) Survey of American history from the earliest times to 1865.

202. AMERICAN HISTORY. (3) Prerequisite: History 201. Survey of American history from 1865 until the present.

305. ANCIENT HISTORY. (3) From the earliest civilizations until the fourth century A.D.

306. MEDIEVAL HISTORY. (3) Political and cultural developments from the late Roman Empire until the Renaissance.

307. RENAISSANCE AND REFORMATION. (3) The intellectual and religious transformations of the early modern period and their political repercussions, 1300-1648.

311. RUSSIAN HISTORY. (3) Survey of Russian history until 1825.

312. RUSSIAN HISTORY. (3) Survey of Russian history from 1825 until the present.

317. NINETEENTH CENTURY EUROPE, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna. Emphasis will be placed on liberalism, nationalism, imperialism, and the diplomatic agreements leading to World War I.

318. TWENTIETH CENTURY EUROPE, 1914 TO THE PRESENT. (3) A review of the causes and results of World War I followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II, and the post-war period.

333. AMERICAN ECONOMIC HISTORY SINCE 1800. (3) Development of a national economy, including monetary and banking problems, industrialization, and problems of labor and agriculture.

334. AMERICAN LABOR HISTORY. (3) Life and thought of American workingmen from the colonial period to the present, with attention to both the individual and to the development of labor organizations.

336. ORIGINS OF THE AMERICAN CONSTITUTION. (3) The historical and philosophical background which led to the adoption of the American Constitution. Emphasis is placed on the Constitution's heritage from the Enlightenment, and the English and Colonial background. The course traces the writing and development of the Constitution through the Marshall Court.

339. HISTORY OF NORTH CAROLINA. (3) Emphasis on the colonial developments and on the constitutional, educational and transportation developments of the ante-bellum period.

343. COLONIAL AMERICA. (3) Colonial history from the discoveries to 1763.

344. THE AMERICAN REVOLUTION AND EARLY NATION. (3) The achievement of independence and the creation of a national identity, 1763-1830.

361. BRITAIN TO 1485. (3) Survey of British history with emphasis on institutional, cultural, economic, and imperial developments.

362. MODERN BRITAIN, 1485-1789. (3) Continuation of History 361 with some treatment of the British Empire.

363. MODERN BRITAIN AND THE BRITISH EMPIRE SINCE 1789. (3) Continuation of History 362 with greater emphasis on the Empire and Commonwealth.

401. THE AGE OF ABSOLUTISM. (3) The problems of statecraft in the major continental countries, with some emphasis on cultural developments, 1648-1789.

402. FRENCH REVOLUTION AND NAPOLEON. (3) The changes in French politics and society and their effect on the Western World, 1789-1815.

431. AMERICA IN CRISIS, 1824-1860. (3) A consideration of the new American nation in crisis. Attention is given to the development of nationalism under Jackson, the expansion of the new nation, the growth of sectionalism, and the events leading to secession.

432. CIVIL WAR AND RECONSTRUCTION, 1860-1877. (3) Prerequisite: consent of instructor. A study of the American people in war and post-war adjustment. Emphasis is placed on the political, social, and economic conditions of the North and South during the Civil War and Reconstruction period.

433. AMERICAN SOCIAL AND INTELLECTUAL HISTORY TO 1860. (3) Development of American social institutions and thought from the beginnings to the Civil War. The course is conducted as a colloquium, combining lectures, discussions, extensive reading, and oral reports and a research paper by each student.

434. AMERICAN SOCIAL AND INTELLECTUAL HISTORY SINCE 1860. (3) Continuation of History 403 from the Civil War to the present.

461. TUDOR ENGLAND, 1485-1603. (3) Treatment in depth of the English Reformation, the English Renaissance, and the creation of English naval and economic power.

462. STUART ENGLAND, 1603-1714. (3) Treatment in depth of the socio-economic and political phases involved in the Civil War, Restoration and Glorious Revolution, and International and Colonial involvement.

491. TUTORIAL IN HISTORY. (2) Required of all history majors. Seminar in historical method, bibliography, and purpose of historical writing. A major research paper under the direction of a staff member.

POLITICAL SCIENCE

A major in Political Science leading to the B.A. degree consists of 27 semester hours of political science, including Introduction to Politics and Political Institutions in the United States (3), Senior Seminar (3), and either the Process of Government in the United States (3), or Totalitarianism and Democracy (3). Related work consists of 18 semester hours.

201. INTRODUCTION TO POLITICS AND POLITICAL INSTITUTIONS IN THE UNITED STATES. (3) The formal and informal political institutions of the United States in their historical, cultural, and ideological context. The evolution of the modern constitution, co-operative federalism, equal suffrage, and constitutional rights. The making and effecting of public policy.

202. THE PROCESS OF GOVERNMENT IN THE UNITED STATES. (3) Prerequisite: Political Science 201. The origin, the making, and the implementation of public policy. Emphasis on the effect of government policy on various interests in society.

212. STATE AND LOCAL POLITICS AND POLITICAL INSTITUTIONS IN THE UNITED STATES. (3) Prerequisite: Political Science 201. The states in the federal system: their history, constitutions, governmental structure, and relations with other units of government; the problems of urban and suburban areas. Politics and policy formation at each level of government.

231. AN INTRODUCTION TO COMPARATIVE GOVERNMENT: TOTALITARIANISM AND DEMOCRACY. (3) Prerequisite: Political Science 201. A comparative analysis of the Soviet and American political systems, with emphasis on the means by which power is gained and wielded in the two societies. Historical and cultural experience is considered.

302. POLITICS, PARTIES AND PRESSURE GROUPS IN THE UNITED STATES. (3) Prerequisite: Political Science 201. Analysis of the structure, role, and techniques of political parties in the United States. The modern political system analyzed as the evolutionary product of the nation's political history. The role of non-party groups in the political process.

331. COMPARATIVE POLITICAL SYSTEMS OF WESTERN EUROPE. (3) Prerequisite: Political Science 201. A comparative analysis of the politics and political institutions of Western Europe, especially Great Britain, France, and Germany.

336. THE POLITICS OF THE SOVIET BLOC. (3) Prerequisite: Political Science 201. A comparative analysis of the politics and political institutions of the USSR and the satellites. Special reference will be made to the Communist ideology in actual practice.

353. HISTORY OF POLITICAL THOUGHT. (3) Prerequisite: Political Science 201. Major concepts and systems of political thought from Plato to the Seventeenth Century.

354. HISTORY OF POLITICAL THOUGHT. (3) Prerequisite: Political Science 353. Continuation of Political Science 353. Major concepts and systems of political thought from the Seventeenth Century until the present. The relevance of political theory to political action.

356. THE POLITICAL THEORY OF THE EIGHTEENTH CENTURY. (3) Prerequisite: Political Science 201. The development of liberal and democratic political thought. Major emphasis is on English, French, and American political thought from the revocation of the Edict of Nantes in 1685 to the end of the revolutionary period in 1815.

362. AN INTRODUCTION TO INTERNATIONAL POLITICS AND INSTITUTIONS. (3) Prerequisite: Political Science 201. Analysis of politics among nations: material and psychological sources of national power, the role of law, force, and diplomacy in world politics, problems of peace and disarmament, and international organizations.

364. AMERICAN FOREIGN POLICY. (3) Prerequisite: Political Science 201. The problem of defining the objectives of foreign policy in the United States and of selecting the means for achieving them; past, present, and suggested American strategies in world politics. Comparisons will be made with the processes and issues in other nations.

421. CONSTITUTIONAL POLITICS. (3) Prerequisite: Political Science 201. Analysis of the federal judiciary, the decision-making behavior of the justices of the Supreme Court, the policy-making role of the Supreme Court in several major areas. Emphasis is placed not only on the content of historic Supreme Court decisions, but on the politics and personalities of the Court as well.

446. POLITICAL SYSTEMS IN TRANSITION. (3) Prerequisite: Political Science 201. The comparative political experience of selected less developed countries.

453. RECENT AND CONTEMPORARY POLITICAL THEORY. (3) Prerequisite: Political Science 201. The theoretical foundations of modern political practice. An analytical and historical study of the theories from 1900 to the present. Background to modern theory found in the theory of other eras of history will be considered.

458. AMERICAN POLITICAL THEORY. (3) Prerequisite: Political Science 201. American political thought from colonial times to the social service state. The European origins of American theories are a major part of the course.

462. INTERNATIONAL ORGANIZATIONS. (3) Prerequisite: Political Science 201. The structure, processes, and problems of current general and regional international organizations, with emphasis on the United Nations.

471. CONTEMPORARY PROBLEMS IN SOVIET FOREIGN POLICY. (3) Prerequisite: Political Science 201. The current problems within the Communist bloc; its relations with the rest of the world.

481. AN INTRODUCTION TO THE STUDY OF PUBLIC ADMINISTRATION. (3) Prerequisite: Political Science 201. An institutional and behavioral analysis of the administrative process. Includes: the rise of the administrative state, its impact on administrative theory and practice, and the nature of the new public bureaucracy; the tasks of the administrator; the political environment of administration; organization, personnel, and finance; the regulatory function and administrative law; and administrative responsibility.

482. RECENT NATIONAL POLICY AND ADMINISTRATION. (3) Prerequisite: Political Science 201. An analytical and critical survey of basic national policies affecting business, labor, agriculture, and other groups. An examination of the assumption by our government of major responsibility for the guidance and direction of the American economy.

492. SENIOR SEMINAR: THE METHODOLOGY OF MODERN POLITICAL SCIENCE. (3) Prerequisite: Senior standing. Scope and method of Political Science. A course in the "how" and "why" of the discipline rather than the "what." The staff in Political Science will lead the seminar in the consideration of: (1) major works in Political Science (books and scholarly articles), (2) significant research methods and tools for analysis, (3) some more important theories currently guiding research in the discipline, and (4) the present posture or direction of the discipline.

MATHEMATICS

Professors Wahab, Chairman; Goodrum,[1] Perel; Associate Professors George, Markham, Schell; Assistant Professors Embry, Lawrence, Nixon, Thomas; Instructors Davis, Marshall, Morrow

A major in mathematics for the B.A. degree consists of 27

semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department.

A major in mathematics for the B.S. degree consists of 40 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department. For the B.S. degree, a mathematics major must choose French, German, or Russian to satisfy the language requirement.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103 and 104, unless exempted by the department. It is recommended that a prospective freshman major enroll in these courses during the summer session immediately preceding his freshman year.

The B.S. Degree in Mathematics, Curriculum Outline

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Foreign Language 201	3	Foreign Language 202	3
Science	4	Science	4
	17		17

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 2xx	3
Foreign Language 301	3	Mathematics	3
Science	4	Mathematics 242	4
Mathematics 241	4	Science	4
Social Science	3	Social Science	3
	17		17

JUNIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	6
Social Science	3	Humanities	3
Humanities	3	Related Work	6-8
Related Work	3-4		15-17
	15-16		

SENIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	3-6
Related Work	6-8	Related Work	3-6
	12-14	Electives	3-9
			12-15

[1] On leave of absence, 1964-1965.

The B.A. Degree in Mathematics, Curriculum Outline

The curriculum outline for the B.A. degree is essentially the same as for the B.S. degree, except that up to 13 semester hours of mathematics courses may be replaced by an equal number of semester hours of electives.

101. ELEMENTARY ALGEBRA. (3) Sets, logic, algebraic structures. (Credit for both 101 and 103 will not be given.)

102. ELEMENTARY ANALYSIS. (3) Prerequisite: Mathematics 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to the social and life sciences.

103. ALGEBRA. (3) Sets, logic, an axiomatic treatment of the real numbers as a complete ordered field, solution sets of equations and inequalities, matrices, complex numbers, and mathematical induction. (Credit for both 101 and 103 will not be given.)

104. VECTOR ALGEBRA. (3) Prerequisite or corequisite: Mathematics 103. Algebra and geometry of vectors, with trigonometry.

141. INTRODUCTORY ANALYSIS I. (4) Prerequisites: Mathematics 103 and 104, with a grade of C or better in each. (If a student can show to the satisfaction of the Mathematics Department that his knowledge of Mathematics 103 or 104 is adequate, he may be exempted from taking one or both of these courses as prerequisites for Mathematics 141.) The first course of a four semester sequence, including vector spaces, linear transformations, analytic geometry, the calculus of vector functions of vector variables, differential equations, and numerical methods. Three lecture hours and two problem hours per week.

142. INTRODUCTORY ANALYSIS II. (4) Prerequisite: Mathematics 141, with a grade of C or better. A continuation of Mathematics 141. Three lecture hours and two problem hours per week.

221. INTRODUCTION TO PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 102 or consent of the Department. The first course of a two semester sequence of a modern introduction to the mathematical theory of probability and statistics with applications.

222. INTRODUCTION TO PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 221. A continuation of Mathematics 221.

231. PROGRAMMING FOR DIGITAL COMPUTERS. (1) Prerequisite or corequisite: Mathematics 102 or 141. Construc-

tion and use of flow charts, use of a compiler and assembly program, and Fortran. Intended primarily for students in the sciences and social sciences who will want to make use of a computer during their junior and senior years. One two-hour laboratory period per week.

241. INTRODUCTORY ANALYSIS III. (4) Prerequisite: Mathematics 142, with a grade of C or better. A continuation of Mathematics 142. Three lecture hours and two problem hours per week.

242. INTRODUCTORY ANALYSIS IV. (4) Prerequisite: Mathematics 241, with a grade of C or better. A continuation of Mathematics 241. Three lecture hours and two problem hours per week.

311. OPERATIONS RESEARCH I. (3) Prerequisite: Mathematics 222 or consent of the department. The first course of a two semester sequence, including matrix algebra, convex sets, linear programming, and the theory of games.

312. OPERATIONS RESEARCH II. (3) Prerequisite: Mathematics 311. A continuation of Mathematics 311.

322. PROBABILITY AND STATISTICS. (3) Prerequisites: Mathematics 222 and 242. Sample spaces and random variables, limit theorems, stochastic processes, estimation, and hypothesis testing.

331. COMPUTER SCIENCE I. (3) Prerequisite: Mathematics 141 or 221; prerequisite or corequisite: Mathematics 231, or consent of the department. The first course of a two semester sequence including the characteristics, language, and logical design of computers, with applications in the behavioral and physical sciences.

332. COMPUTER SCIENCE II. (3) Prerequisite: Mathematics 331. A continuation of Mathematics 331.

343. ANALYSIS I. (3) Prerequisite: Mathematics 241, with a grade of C or better. The first course of a three semester sequence including real and complex number systems, sets, limits, and continuity, differentials of functions of one and several variables, applications of partial differentiation, functions of bounded variation, rectifiability, connectedness, the Riemann-Stieltjes integral, multiple integrals, line integrals, vectors and vector fields, gradients, divergence, curl, and the Laplacian.

344. ANALYSIS II. (3) Prerequisite: Mathematics 343. A continuation of Mathematics 343.

350. TOPICS IN MATHEMATICS. (Two or three semester hours credit. May be repeated for additional credit with the ap-

proval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as set theory, linear algebra and geometry, and probability. This course is designed to serve particular needs, not served by other departmental offerings, such as the needs of the National Science Foundation Institute for Teachers.

361. LINEAR ALGEBRA. (3) Prerequisite: Mathematics 142 or consent of the department. Algebra and geometry of vector spaces, linear transformations and matrices, linear equations and characteristic values.

362. NUMBER THEORY. (3) Prerequisite: consent of the department. Introductory topics from the theory of rational and algebraic integers.

363. MODERN ALGEBRA I. (3) Prerequisite: Mathematics 242 or consent of the department. The first course of a two semester sequence covering topics in group theory, rings and ideals, fields, and Galois theory.

364. MODERN ALGEBRA II. (3) Prerequisite: Mathematics 363. A continuation of Mathematics 363.

371. APPLIED MATHEMATICS I. (3) Prerequisite: Mathematics 242, with a grade of C or better. The first course of a two semester sequence including vector analysis, complex variables, Fourier series and Fourier integrals, special functions, operational mathematics, probability theory, calculus of variations, the Laplace transform, and partial differential equations.

372. APPLIED MATHEMATICS II. (3) Prerequisite: Mathematics 371. A continuation of Mathematics 371.

381. FUNDAMENTAL CONCEPTS OF GEOMETRY. (3) Prerequisite: Mathematics 142 or consent of the department. Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

391. SEMINAR. (2) Prerequisite: consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

392. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 391.

403. ARITHMETIC IN THE SCHOOL. (3) Prerequisite: Mathematics 102 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration, and the number line appropriate for each grade. (Does not count toward a major in mathematics.)

409. HISTORY OF MATHEMATICAL THOUGHT. (3) Prerequisite: Mathematics 102 or 141. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. (Does not count toward a major in mathematics.)

443. ANALYSIS III. (3) Prerequisite: Mathematics 344. A continuation of Mathematics 344.

450. SELECTED TOPICS IN MATHEMATICS. (Two or three semester hours credit, but may be repeated for credit with the approval of the department.) Prerequisite: consent of the department. Topics from topology, differential geometry, complex analysis, applied mathematics, or modern algebra.

491. SEMINAR. (2) Prerequisite: consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 491.

MUSIC

Instructor Woodruff

101. CHORUS I. (1) Opportunity for students who enjoy singing to gain basic training in the principles of voice production through choral participation in the University Chorus. Repertoire of both sacred and secular music. Public appearances through assembly programs, radio and television presentations, school and civic club visits, and commencement exercises. Only four semester hours of chorus may be credited toward a degree.

102. CHORUS I. (1) Continuation of Music 101.

103. INDIVIDUAL VOICE STUDY. (1) Basic techniques of singing: classification of the voice, breathing, posture, freedom and vitalization of tone, vocalization, elements of diction, simple songs in English and Italian. One hour of practice daily.

104. INDIVIDUAL VOICE STUDY. (1) Continuation of Music 103. One hour of practice daily.

201. CHORUS II. (1) Choral training and presentation with the University Chorus.

202. CHORUS II. (1) Continuation of Music 201.

203. PROGRESSIVE VOICE STUDY. (1) Standard classics in English and Italian with additional study of songs in French, German, or Spanish. Memorization of basic repertoire with application of sound principles of interpretation. One hour of practice daily.

204. PROGRESSIVE VOICE STUDY. (1) Continuation of Music 203. One hour of practice daily.

205. MUSIC APPRECIATION. (2) Designed primarily to enhance the enjoyment of listening to music and to develop the art of discrimination through understanding. Emphasis is placed on maximum exposure to fine music through recordings, films, and live presentations. No previous technical knowledge required.

301. CHORUS III. (1) Choral training and presentations with the University Chorus.

302. CHORUS III. (1) Continuation of Music 301.

303. ADVANCED VOICE STUDY. (1) Continuation of Music 204. One hour of practice daily.

304. ADVANCED VOICE STUDY. (1) Continuation of Music 303. One hour of practice daily.

307. MUSIC FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite or corequisite: Education 303. Methods and materials of instruction which the teacher can apply in a music program in the elementary school.

401. CHORUS IV. (1) Continuation of Music 302.

402. CHORUS IV. (1) Continuation of Music 401.

403. ADVANCED VOICE STUDY. (1) Continuation of Music 304. One hour of practice daily.

404. ADVANCED VOICE STUDY. (1) Continuation of Music 403. One hour of practice daily.

NURSING

Associate Professor Brocker, Chairman

For the degree of Bachelor of Science in Nursing, 40 semester hours in nursing and 15 semester hours in related work are required. A total of 128 semester hours are required.

Quality requirements:

At least a 2.00 quality-point average on all courses attempted. It is recommended that both Chemistry and Biology be taken in high school in preparation for the nursing program.

Bachelor of Science in Nursing

A four-year curriculum has been planned and is now in the process of being implemented. The program consists of courses in the fields of liberal arts and sciences, nursing, and areas allied to nursing.

FRESHMAN YEAR	Sem. Hrs.
English 101, 102	6
Mathematics 101, 102	6
Chemistry 101, 102	8
Biology 101	4
Nursing 101, 102	6
Elective in Humanities/ Social Sciences	3
	33

SOPHOMORE YEAR	Sem. Hrs.
Foreign Language 201, 202	6
Social Science (Soc. 201, Psych. 201)	7
Biology 204, 203	8
Nursing 201, 202, 203, 204	12
	33

In the Junior and Senior years, the curriculum will offer electives in Humanities and Social Sciences and upper division courses in Nursing.

All clinical courses are taught in related hospitals and other community health agencies and provide for the application of content in actual patient and/or family situations.

101. INTRODUCTION TO NURSING. (3) An introductory course designed to acquaint students with the traditions of nursing, some of the famous nurses of the world, professional nursing organizations, and the major issues confronting nursing today.

102. ECOLOGY OF MAN I. (3) The focus of this course is directed toward understanding the relationship of the ill person to his family and community. Major health problems and facilities provided by society for meeting health needs will be included in the content. Lectures, field trips.

201. FUNDAMENTALS OF NURSING. (4) Prerequisites or corequisites: Nursing 101, 102. Study of the basic concepts and principles essential for the nursing care of adults and children. Emphasis is placed on the correlation of principles of nursing with concepts of behavioral and natural sciences. Two hours lecture, six hours laboratory assignments in patient care areas.

202. FUNDAMENTALS OF NURSING II. (4) A continuation of Nursing 201.

203. NUTRITION. (2) Study of the principles of nutrition and their application to the needs of normal individuals and the modifications necessary in the treatment of illness. Non-laboratory course.

204. ECOLOGY OF MAN II. (2) Prerequisite: Nursing 102 or consent of the department. A laboratory course. Students will work with carefully selected families, performing appropriate nursing functions. Individual and group study. Field work.

PHILOSOPHY

Assistant Professors Witherspoon and Corkey

201. SYSTEMATIC INTRODUCTION. (3) The major issues in philosophy. Typical problems, such as moral freedom, the mind-body relationship, and the status of moral judgments. The schools of materialism, idealism, realism, and pragmatism described.

203. DEVELOPMENT OF PHILOSOPHY. (3) A historical approach to philosophy with references to the systems of western thinkers.

205. INTRODUCTION TO LOGIC. (3) A survey of the general principles of deductive and inductive logic and of the nature of scientific method. Elements of symbolic logic.

301. ETHICS. (3) A survey of the development of ethical thought in ancient and modern times, with special references to present day ethical problems.

302. ANCIENT PHILOSOPHY FROM THALES TO PLOTINUS. (3) Prerequisite: Philosophy 203. An inquiry into the history of Western thought from the early Greeks to the Post-Socratic schools. Pre-Socratics, Plato, Aristotle, Epicureanism, Stoicism, Neoplatonism, and Greek Skepticism.

401. PHILOSOPHY OF RELIGION. (3) Prerequisites: Philosophy 201 and Junior standing. A discussion of the philosophical implications of religious experience. The definitions, development, and diverse forms of the problems of belief and reason in modern thought.

425. AMERICAN PHILOSOPHY. (3) Prerequisites: Philosophy 201, Junior standing, and consent of the instructor. The emergence of American thought from its matrix in earlier theological, social, and literary thought. Chief emphasis on the late nineteenth and early twentieth centuries.

PHYSICAL EDUCATION

101, 102. PHYSICAL EDUCATION. (1, 1) These courses are designed to raise the level of physical fitness and to introduce the students to group sports.

409. PHYSICAL EDUCATION LABORATORY. (2) Prerequisite: Education 303. Physical education instruction, principles of physical education teaching for the elementary grades.

PHYSICS

Assistant Professor MacRae

101. INTRODUCTORY PHYSICS. (4) Prerequisite or corequisite: Mathematics 101 or Mathematics 103. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g., relativity, quantum mechanics, elementary particles) in order to illustrate the logical structure of modern science. Three lecture hours and one three hour laboratory each week.

102. INTRODUCTORY PHYSICS. (4) Prerequisite: Physics 101. A continuation of Physics 101. Three lecture hours and one three hour laboratory each week.

201. FOUNDATIONS OF PHYSICS I. (4) Corequisite: Mathematics 142. Logical, mathematical, and empirical structure of the major concepts and principles of physics. Topics from kinematics, dynamics (classical and relativistic), electromagnetism, wave theory, and elementary quantum theory will be selected to emphasize such fundamental concepts as conservation laws, symmetry principles, nature of space and time. Three lecture hours and one three hour laboratory each week.

202. FOUNDATIONS OF PHYSICS II. (4) Prerequisite: Physics 201. A continuation of Physics 201. Three lecture hours and one three hour laboratory each week.

300. SPECIAL TOPICS. (One to three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: Physics 202. Used to comply with requests for special topics from such fields as special relativity, solid state physics, advanced quantum physics, advanced statistical physics.

311. INTRODUCTION TO QUANTUM PHYSICS. (3) Prerequisite: Physics 202, or consent of department. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of atoms, molecules, and solids.

313. INTRODUCTION TO STATISTICAL PHYSICS. (3) Prerequisite: Physics 202 or consent of department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics.

PSYCHOLOGY

Professor Diamant; Assistant Professor Sohn; Instructor Windholz

A major in Psychology leading to the B.A. degree consists of 28 semester hours of Psychology, including General Psychology (201), Experimental Psychology (341), and Seminar (491 or 492).

Psychology majors are also required to take Math 221-222, Probability and Statistics, and a minimum of three courses in areas A and B below. Both areas must be represented in the selection.

A.		B.	
	Anthropology		Biology
	Sociology		Physics
	Philosophy		Chemistry

A total of 15 semester hours in related work, to be arranged with the Department of Psychology, and which may include courses from areas A and B, is to be taken by majors. Twenty-one hours of Education may, if desired by a student taking work in Elementary Education, be substituted for the three courses drawn from A and B.

1st Semester	
English 101	3
History 101	3
Mathematics 101	3
Natural Science	4
Foreign Language	3
	16

2nd Semester	
English 102	3
History 102	3
Mathematics 102	3
Natural Science	4
Foreign Language	3
	16

3rd Semester	
English 201	3
Foreign Language	3
Psychology 201	4
Mathematics 221	3
Elective	3
	16

4th Semester	
English 202	3
Natural Science	4
Mathematics 222	3
Psychology Elective	3
Elective	3
	16

5th Semester	
Experimental Psychology 341	3
Related Work	6
Psychology Elective	3
Electives	6
	18

6th Semester	
Psychology Electives	6
Related Work	3
Electives	6
	15

7th Semester	
Psychology Seminar 491	3
Related Work	3
Psychology Elective	3
Electives	6
	15

8th Semester	
Psychology Electives	3
Related Work	3
Electives	9
	15

201. GENERAL PSYCHOLOGY. (4) Survey of general psychology as a behavioral science. Three lecture hours and one laboratory period of two hours a week.

202. EDUCATIONAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The psychology of learning; problems related to the instructional processes.

203. PSYCHOLOGY OF ADJUSTMENT. (3) Prerequisite: Psychology 201. The study of the process of adjustment. Primary consideration given to motivation, frustration and conflict, adjustment mechanisms, and psychotherapy.

301. CHILD PSYCHOLOGY. (3) Prerequisite: Psychology 201. The instincts, emotions, and general tendencies of children up to the age of twelve. Remedial measures suggested in dealing with early child tendencies which might lead to serious difficulty. Special study of at least one child required for each student.

302. ADOLESCENT PSYCHOLOGY. (3) Prerequisite: Psychology 201. Developmental and psychological characteristics of adolescence. Research methods and familiarity in case study emphasized.

303. SOCIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The social behavior of man. Man's behavior in relation to other individuals, groups, and products of culture, both material and nonmaterial. Group dynamics, leadership, the nature of prejudice, the effects of mass communication, public opinion are some of the topics treated.

305. PSYCHOLOGY OF PERSONALITY. (3) Prerequisite: Psychology 201. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, and perceptual viewpoints in the light of contemporary research.

307. ABNORMAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

308. LEARNING THEORY. (3) Prerequisite: Psychology 201. A survey of learning theories including the major associationist, cognitive, and mathematical positions. A comparative approach is taken whenever possible.

341. EXPERIMENTAL PSYCHOLOGY: LEARNING AND MOTIVATION. (3) Prerequisites: Psychology 201 and Math 222. History of the experimental approach to motivation and learning theory, current issues and controversy. Emphasis on laboratory problems. Two lecture hours and one laboratory period of two hours a week.

342. EXPERIMENTAL PSYCHOLOGY: SENSATION AND PERCEPTION. (3) Prerequisites: Psychology 201 and Math 222. Survey of literature on sensation and perception. Introduction to problems and methods in research in sensation and perception. Two lecture hours and one laboratory period of two hours a week.

351. PHYSIOLOGICAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The relationship of the physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

361. PSYCHOLOGICAL SYSTEMS. (3) Prerequisite: Psychology 201. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behaviorist theory. Evaluation of current existential influence.

371. INDUSTRIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. Psychological theories as applied to industry and business. Studies in human engineering and personnel problems.

450. TESTS AND MEASUREMENTS. (3) Prerequisite: Psychology 201. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration, and application of group tests. Individual tests such as Stanford Binet, WISC, and WAIS will be reviewed.

421. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3) Prerequisites: Psychology 201 and 301. Assessing the exceptional child. Emphasis on current research in several diagnostic categories.

491. SEMINAR. (3) Admission by consent of department. Intensive reading and discussion in selected areas. Issues of current importance; social, scientific, and philosophical implications.

492. SEMINAR. (3) Admission by consent of department. A continuation of 491.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology, or (2) major in sociology with related work in psychology (see p. 113-115). Whichever major is chosen, care should be taken to include the following courses: Psychology 305 (Theory of Personality Development), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the

best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

RELIGION

Assistant Professors Witherspoon and Corkey

201. SURVEY OF THE OLD TESTAMENT. (3) An introduction to the literary and historical values of the Old Testament literature. Emphasis upon the background, purpose, and content of the writings in English translations.

202. SURVEY OF THE NEW TESTAMENT. (3) New Testament literature in its historic and contemporary background. Emphasis upon the content and purpose of the text in English translations.

203. COMPARATIVE RELIGIONS. (3) A survey of man's religious consciousness from the earliest intimations of its awakening to the development of the world's living religions today, utilizing modern research among contemporary primitive cultures and translations of the primary sources of the world's great scriptures.

406. RELIGION IN AMERICAN LIFE. (3) Prerequisite: Junior standing and the consent of the instructor. An inquiry into the role religion has played in the development of American life with particular emphasis on the late nineteenth and twentieth centuries.

SOCIOLOGY

Professor Harlan; Instructor Gates

A major in sociology leading to the A.B. degree consists of 27 semester hours of sociology, including Soc. 201 (General Sociology), Soc. 401 (Sociological Theory), Soc. 410 (Research in Sociology), and Soc. 491 (Seminar for Majors in Sociology). Related work consists of 21 semester hours in any two of the following fields: economics, history, mathematics, political science, psychology. Math. 221, 222 (Introduction to Probability and Statistics I, II) are required of majors in sociology.

201. GENERAL SOCIOLOGY. (3) Survey of the field of sociology to cover such topics as: social norms and values, status and role, social stratification, socialization, crowds and publics, formal and informal groups, urban communities, population, social institutions.

203. GENERAL ANTHROPOLOGY. (3) Survey of the field of anthropology: physical anthropology, prehistoric archeology, ethnology, culture theory.

302. SOCIAL PROBLEMS. (3) Prerequisite: Sociology 201. Sociological analysis of crime and delinquency, alcoholism, drug addiction, mental disorders, race relations, and problems of population.

303. SOCIOLOGY OF THE FAMILY. (3) Prerequisite: Sociology 201. Analysis of the structure and functioning of the American family and of such related institutional patterns as dating, courtship, marriage, and divorce.

310. AMERICAN MINORITY GROUPS. (3) Prerequisite: Sociology 201. Sociological analysis of the relations between minority and dominant groups in America, with special attention paid to such American minorities as immigrant groups, Mexicans, Puerto Ricans, Orientals, Catholics, Jews, Indians, and Negroes.

320. URBAN SOCIOLOGY. (3) Prerequisite: Sociology 201. Origin and development of cities; ecological and social structure of city and region; nature and functioning of urban institutions.

323. COMMUNITY ORGANIZATION OF SOCIAL SERVICES. (3) Analysis of the organization of agencies and services for welfare, health, recreation, and other social needs in American communities.

401. SOCIOLOGY THEORY. (3) Prerequisite: Sociology 201. Background and contemporary expression of systematic theories of social organization, social differentiation, social change, and other social phenomena.

410. RESEARCH IN SOCIOLOGY. (3) Prerequisites: Sociology 201, Math 222. Theory and practice of sociological research: formulation of the problem, research design, data collection, analysis and interpretation of data.

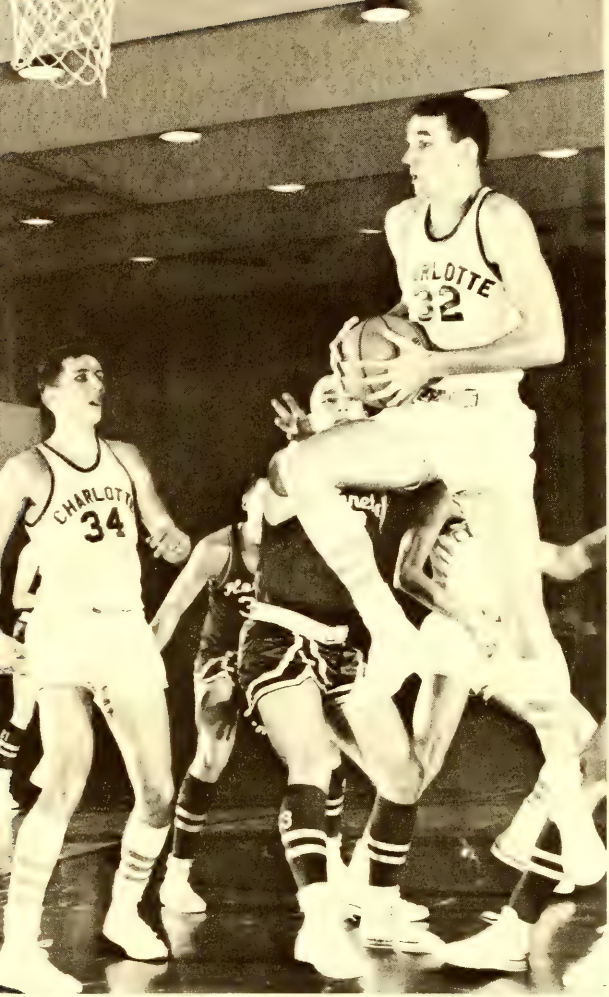
491. SEMINAR FOR MAJORS IN SOCIOLOGY. (3) Prerequisite: Permission of department. Independent study, small group discussion and critique.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology (see p. 110-113) or (2) major in sociology with related work in psychology. Whichever major is chosen, care should be taken to include the following courses: Psychology 305 (Theory of Personality Development), Psychology 307 (Abnormal Psy-

chology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.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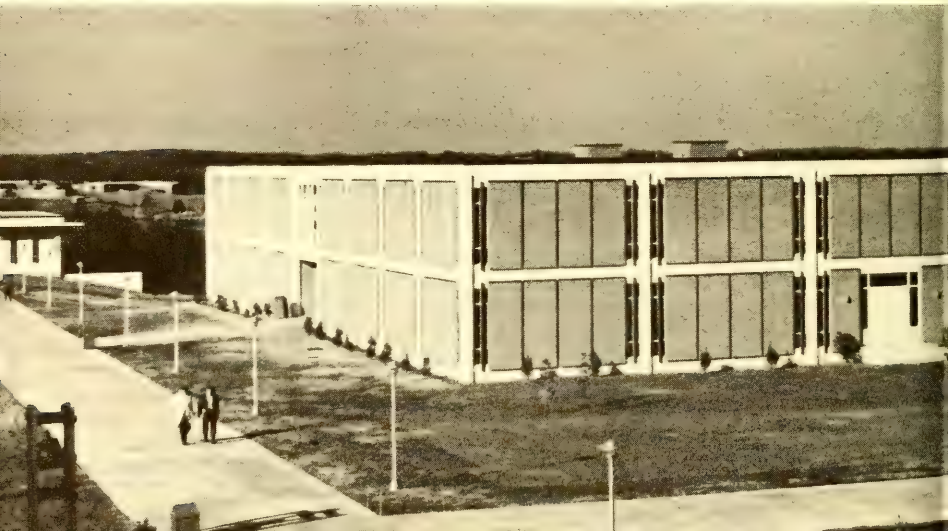

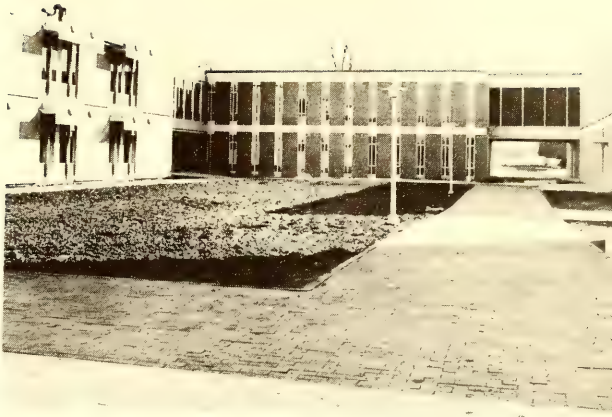

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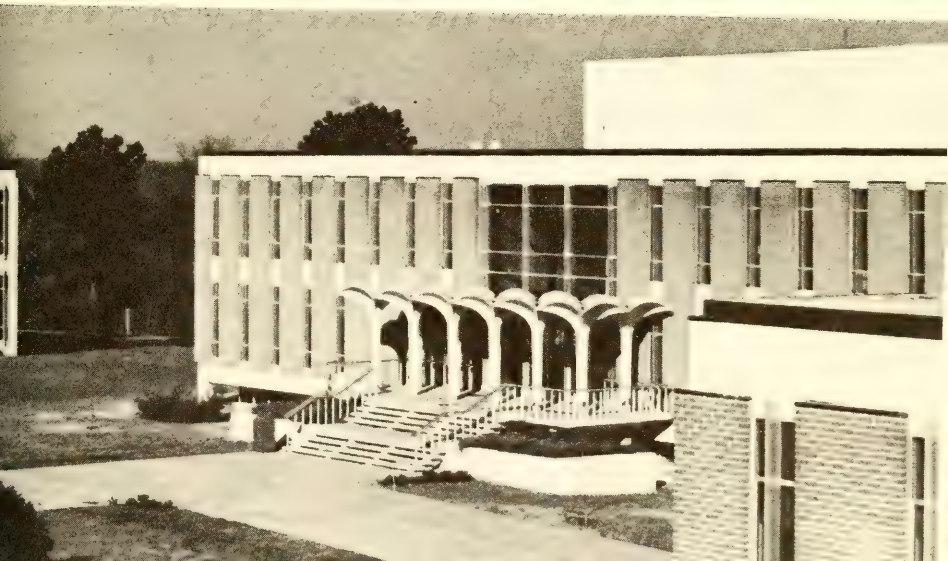


49'ER

V. FACILITIES AND SERVICES

LIBRARY FACILITIES

By providing books, periodicals, pamphlets, recordings, and other resources for the use of the student, the library contributes toward attainment of the University's aim of supplying opportunities for enriched personal living, cultural development, responsible citizenship, and vocational preparation.

The J. Murrey Atkins Library has an open shelf collection of approximately 50,000 catalogued volumes. Some 1,200 journals are subscribed to on a continuing basis. Named a depository for government documents in 1964, the library receives each year thousands of publications printed at the Government Printing Office. Back files of the New York Times and other important newspapers are being added on microfilm. A special collection of "Caroliniana" now totals 2,500 volumes.

The first floor of the library contains the book collection, reference and circulation activities, and a central service core of offices and work areas. The east wing of the second floor is devoted to periodicals, government documents, and other serial publications. Seminar rooms, study areas, a Special Collections Room, and an auditorium complete the second level. Exhibits are frequently presented in lobby areas.

Students may use the Charlotte-Mecklenburg Public Library system which contains the third largest collection in the state. Research materials may also be obtained from other libraries through inter-library loan.

THE UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program. The Union provides for the services, conveniences, and amenities the members of the University family need in their daily life on the campus and for getting to know and understand one another through informal association outside the classroom.

The Union is part of the educational program of the University. It serves as a laboratory of citizenship, training students in social responsibility and for leadership in our democracy. Through its various boards, committees, and staff it provides a cultural, social, and recreational program, aiming to make free time activity a cooperative factor with study in education.

The Union Building, at present, houses the cafeteria, the book store, a games room, lounges, meeting rooms, offices of student government and major publications, and an information center. The building addition, when completed in the fall of 1965, will contain a large multi-purpose room with facilities for dances,

lectures, films, and banquets, additional meeting rooms, an expanded lounge-gallery area, hobby shops, offices for student organizations, and music-listening facilities.

TRANSPORTATION

Beginning with the orientation period in September 1965, Charlotte City Coach Lines will provide bus transportation from Charlotte to the campus on a regular schedule, connecting with established city routes.

DINING FACILITIES

The cafeteria in the Union building serves meals and snacks from 7:30 a.m. to 7:00 p.m., Monday through Thursday, and from 7:30 a.m. to 5:00 p.m. on Friday.

COUNSELING AND TESTING

Each student entering the University is assigned a faculty advisor, who is usually in the department of the student's major. The advisor is available to assist the student in planning his academic program and approve the courses to be taken each semester. The Dean, the department heads, the Director of Admissions and Registration, and the Staff in the Office of Student Affairs are also available to provide the student with information on curricula and to aid him in the selection of a major. However, the ultimate responsibility for the selection of courses and compliance with the University requirements for a degree rests with the student.

Students may consult the Staff in the Office of Student Affairs regarding the choice of a vocation, the selection of curricula, and problems of finance and personal adjustment. Information is available on aptitude and interest tests.

EDUCATION FOR THE VOCATIONALLY HANDICAPPED

Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance, medical treatment and placement, and training or scholarships which cover the costs of training. Payment of University expenses such as books, fees and tuition may be available. All the services are available at no cost to the individual who qualifies.

A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by telephoning the Vocational Rehabilitation Office, located in Room 206, 517 Insurance Lane, at 375-8686.

EMPLOYMENT SERVICE

The University of North Carolina at Charlotte assists students in securing part-time or full-time employment during their enrollment at the University and gives special attention to the placement of graduates. Application should be made in person at the office of the Dean of Student Affairs.

VI. ACTIVITIES

STUDENT ACTIVITIES

STUDENT GOVERNMENT

The University desires to encourage and to develop self-government of its students. The Student Government Association was organized in 1946, the first year of the Charlotte College Center, and has continued to function since that time.

The Student Legislature is composed of the president, vice-president, secretary, and treasurer of the Student Government Association, and the president, vice-president, and four representatives of each of the four classes (freshman, sophomore, junior and senior). The functions of these officers include serving students in every possible way, forming committees vital to the Student Government program, and assisting in the formulation of University policies, with the help of the students and faculty.

It is expected that students will at all times obey the rules and regulations of the University and the regulations of the Student Legislature. The Student Court is established for the purpose of judging violations of these rules and regulations, including making recommendations to the University Administration when this is appropriate. It is through the Student Court that students exercise the privilege of policing themselves.

ATHLETICS

The intercollegiate athletic program consists of competition in basketball, golf, tennis and bowling within the framework of the Dixie Intercollegiate Athletic Conference of which Charlotte College was a charter member. A full schedule of games with other members of the Conference (associated with the National Association of Intercollegiate Athletics) and other four-year institutions throughout the state is played by the University of North Carolina at Charlotte Forty-niners. Additional sports will be added to the program as facilities and staff become available.

RECREATION

An intramural program of activities will be developed as facilities become available on campus.

A full program of recreation and entertainment is sponsored by the University Union. This program includes formal and informal dances, coffee hours, movies, picnics, receptions, game nights, and concerts by popular artists. The University Union building, opened in 1963, serves as the center for these programs as well as for the educational-cultural activities planned by the Union.

PUBLICATIONS

LITERARY MAGAZINE

The Parnassian, a literary magazine, is published by the members of the Writers' Club under the supervision of the English Department. This publication was first issued in the spring of 1957 and has as its aim the promotion of interest in good writing. The broad scope of subject matter gives an interesting presentation of student opinion and sentiment.

NEWSPAPER

To provide information for all persons interested in the University, the students publish a newspaper, the *Charlotte Collegian.*

The purposes of the newspaper are to create a wholesome school spirit, to support the best traditions of the institution which it represents, to encourage worthy university activities, to promote scholarship, to encourage the ideals of true sportsmanship, and to record the history of the University.

YEARBOOK

The University's yearbook, *Si Si,* was first published in the spring of 1950. Since then it has greatly increased in size and student interest. The purpose of the yearbook is to present a written and pictorial record of each university year. This publication is supported through advertisements and the General Fee. The yearbook is provided free to all students taking seven or more semester hours of work each semester during the academic year. Students taking six or fewer semester hours of work each semester during the academic year may obtain a yearbook upon payment of $5.00.

ORGANIZATIONS

ACADEMIC

The purpose of the *University Chapter of the Student National Education Association* is to inform students of the possibilities offered in the field of education, to encourage qualified students to become teachers, and to provide students with an opportunity to discuss educational issues and problems. Professional extracurricular activities serve to widen the student's knowledge and interest in teaching.

The Engineers's Club was formed in the fall of 1960 to give

the student engineer a greater understanding of all phases of engineering. Through the assistance of the Charlotte Engineers' Club, examples of emerging engineering theory are presented in the form of practical applications.

The *Collegiate Council for the United Nations* seeks through discussion groups and inter-campus meetings to gain an understanding of the activities of the United Nations and of the problems facing its member nations. Its broader purpose is to encourage student interest in international affairs.

Its membership is open to all students, and foreign students are particularly urged to take part in the activities of the Council.

Le Cercle Francais, the French Club, is open to all students interested in the language, customs and culture of the French people. Social and educational meetings are held for the purpose of broadening the members' knowledge of French civilization and increasing their conversational ability in the French language.

El Club Espanol is open to students interested in fellowship and conversation in Spanish. The meetings are informal and are usually conducted in both Spanish and English. Frequently Spanish speaking guests talk to members of the club about the Hispanic countries. The students also participate in the presentation of plays, songs, dances, and films.

HONORARY

Phi Theta Kappa is a national honorary scholastic society. Its object is to promote scholarship, to develop character, and to cultivate fellowship among students. The University chapter, *Iota Lambda,* was established in May, 1957. Students who display good moral character and, at the time of election, are within the scholastic upper ten per cent of the regularly enrolled student body are normally eligible for membership.

Sigma Tau Sigma is the national honorary fraternity recognizing excellence in social science. The University chapter, *Alpha,* was established in May, 1957, and is open to students displaying interest and achievement in the social sciences.

SERVICE

Circle K is a men's service organization that seeks to develop activities that will be of significant value to the university. Students may ask to join Circle K or they may be asked by other Circle K members to become affiliated. The University Chapter is sponsored by the Mecklenburg Kiwanis Club.

LITERARY

The Writers' Club has as its purpose the discovering and developing of talent sufficient to provide a genuine support toward the production of a literary magazine. Students showing an interest in writing are invited to become members of the Writers' Club.

DEBATING

The Forensic Society has as its purpose the developing of talent for debating. Members engage in intra-club as well as inter-collegiate debates. The members are coached, and the debates are judged by faculty members.

MUSICAL

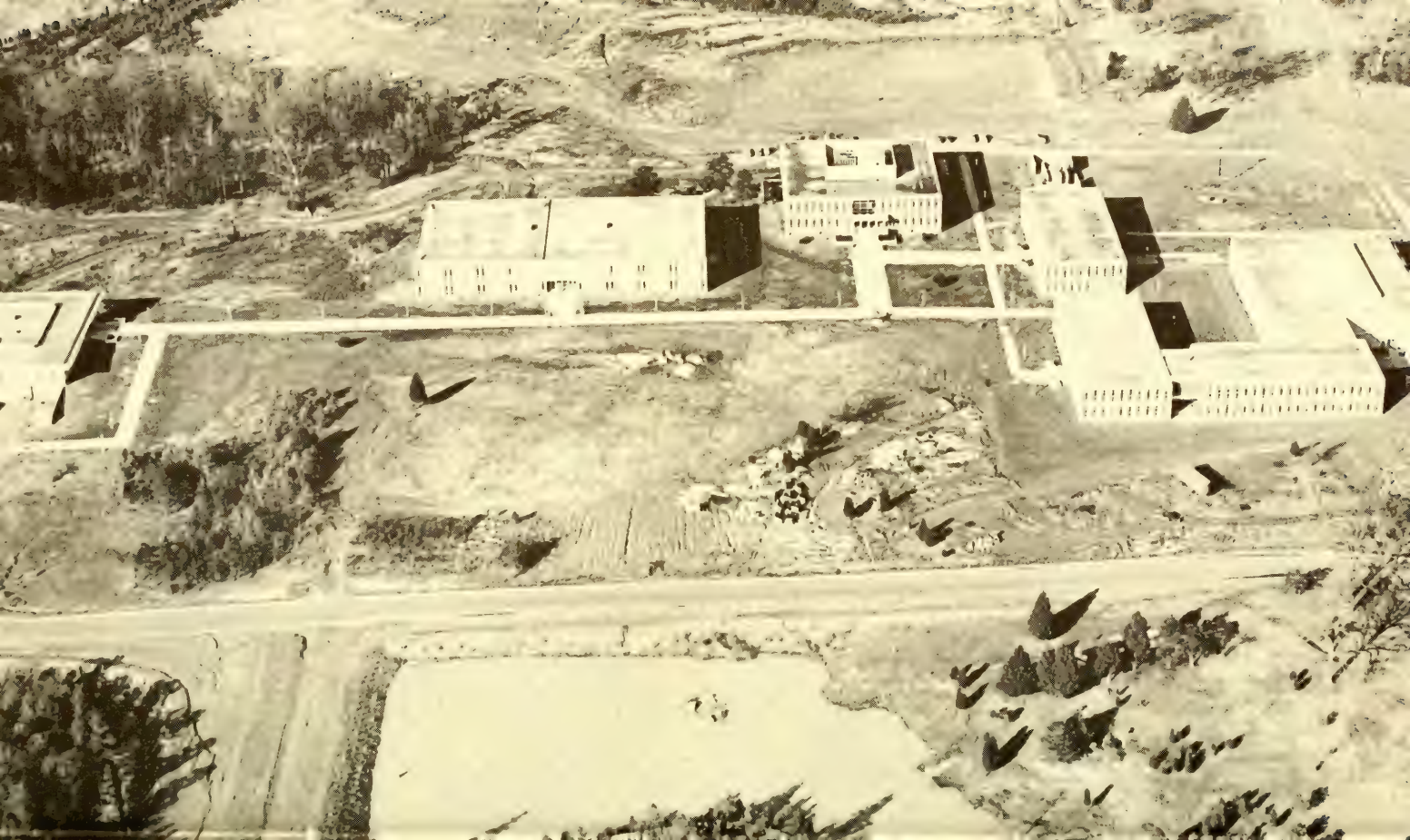
The University Chorus, which was re-organized in 1956, has added much to the atmosphere of the school. The members of this group meet weekly with a dual purpose of enjoying singing together and improving their musical abilities. The Chorus furnishes musical programs for special events during the year. One semester hour of credit may be earned for each semester of participation. Only four semester hours may be credited toward a degree.

ADVISORY

The Freshman Advisory Committee has a dual purpose: to orient new students in the way of the University and to assist the faculty during registration. More than one hundred students are selected by the Student Legislature to serve on this committee.

POLITICAL

The *Young Democrat Club* and the *Young Republican Club* give the student an opportunity to engage in practical politics as well as to hear speakers from local, state, and national levels of our political parties. Membership is open to all interested students.



VII. DIRECTORY

THE UNIVERSITY OF NORTH CAROLINA

(Four Component Institutions)

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ARNOLD KIMSEY KING, A.B., A.M., Ph.D., *Vice-President for Institutional Studies*

FREDERICK HENRY WEAVER, A.M., *Vice-President for Administration*

ALEXANDER HURLBUTT SHEPARD, JR., A.B., M.A., *Business Officer and Treasurer*

By the act of the General Assembly of 1931 the University of North Carolina at Chapel Hill, the North Carolina College for Women at Greensboro (renamed The Woman's College of the University of North Carolina), and the North Carolina State College of Agriculture and Engineering at Raleigh were consolidated into The University of North Carolina.

By the act of the General Assembly of 1963 effective July 1, 1963, The University of North Carolina comprises: The University of North Carolina at Chapel Hill, The University of North Carolina at Greensboro, and North Carolina State of The University of North Carolina at Raleigh (renamed North Carolina State University at Raleigh by the General Assembly of 1965). By the act of the General Assembly of 1965 effective July 1, 1965, Charlotte College has become the fourth component institution of the University and been renamed The University of North Carolina at Charlotte.

Each campus of the University has its own faculty and student body, and each is headed by a chancellor as its chief administrative officer. Unified general policy and appropriate allocation of function are effected by a single Board of Trustees and by the President with other administrative officers of the consolidated University. Administrative offices are located in Chapel Hill.

Members of the Board of Trustees are elected by the Legislature, and the Governor of North Carolina is chairman ex officio. A current list of members of the Board of Trustees is given below.

The chancellor of each component institution is responsible to the President as the principal executive officer of The University of North Carolina.

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THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

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A.B., Erskine College; M.A., Ph.D., Columbia University

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B.A., M.A., Duke University; M.A., University of Denver; Ph.D., Cornell University

[1] Absent on leave 1965-66

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A.B., Duke University; M.Ed., D.Ed., University of North Carolina

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A.B., Atlantic Christian College; M.A., University of North Carolina

Donald Joseph Klein, *Assistant Professor of Economics and Business Administration*
B.S., Rockhurst College; M.B.A., University of Detroit; D.B.A., Michigan State University

James Richard Kuppers, *Associate Professor of Chemistry*
B.S., Ph.D., University of Florida; M.S., Louisiana State University

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Eleanor Mallory Markham, *Associate Professor of Mathematics*
A.B., M.A., Duke University

James Ronald Marshall, *Instructor in Mathematics*
B.S., Appalachian State Teachers College; M.Ed., University of North Carolina

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A.B., M.A., Ph.D., University of Florida

Roy Clifton Moose, *Associate Professor of English*
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Dan Lincoln Morrill, *Assistant Professor of History*
B.A., Wake Forest College; M.A., Emory University

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B.S., M.S., North Carolina State College

David Eugene Nixon, *Assistant Professor of Mathematics*
B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

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A.B., Erskine College; M.A., University of North Carolina

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A.B., A.M., Ph.D., Indiana University

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B.S., University of Dayton; M.A., Ph.D., Indiana University

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A.B., M.A., University of Miami

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Burton Howard Wayne, *Associate Professor of Electrical Engineering*
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Sadie Hamrick Williamson, *Instructor in Business Administration*
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B.Ph., M.B.A., University of Chicago; Ph.D., The Claremont Graduate School

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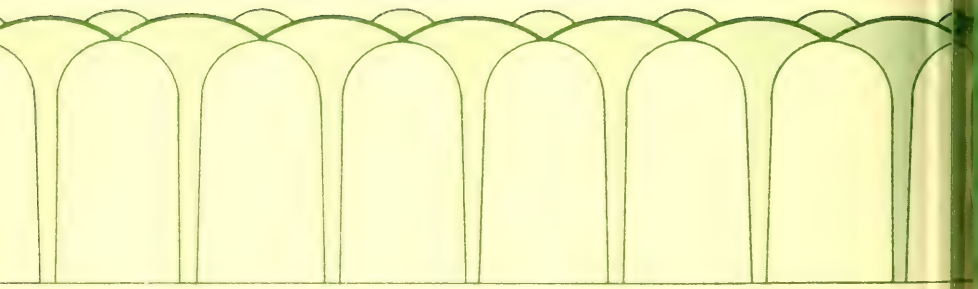

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE 1965-1966

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE
1966-67

March, 1966 Number 2

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE 1966-67

Mailing Address:

The University of North Carolina at Charlotte
P. O. Box 20428
Charlotte, North Carolina 28202

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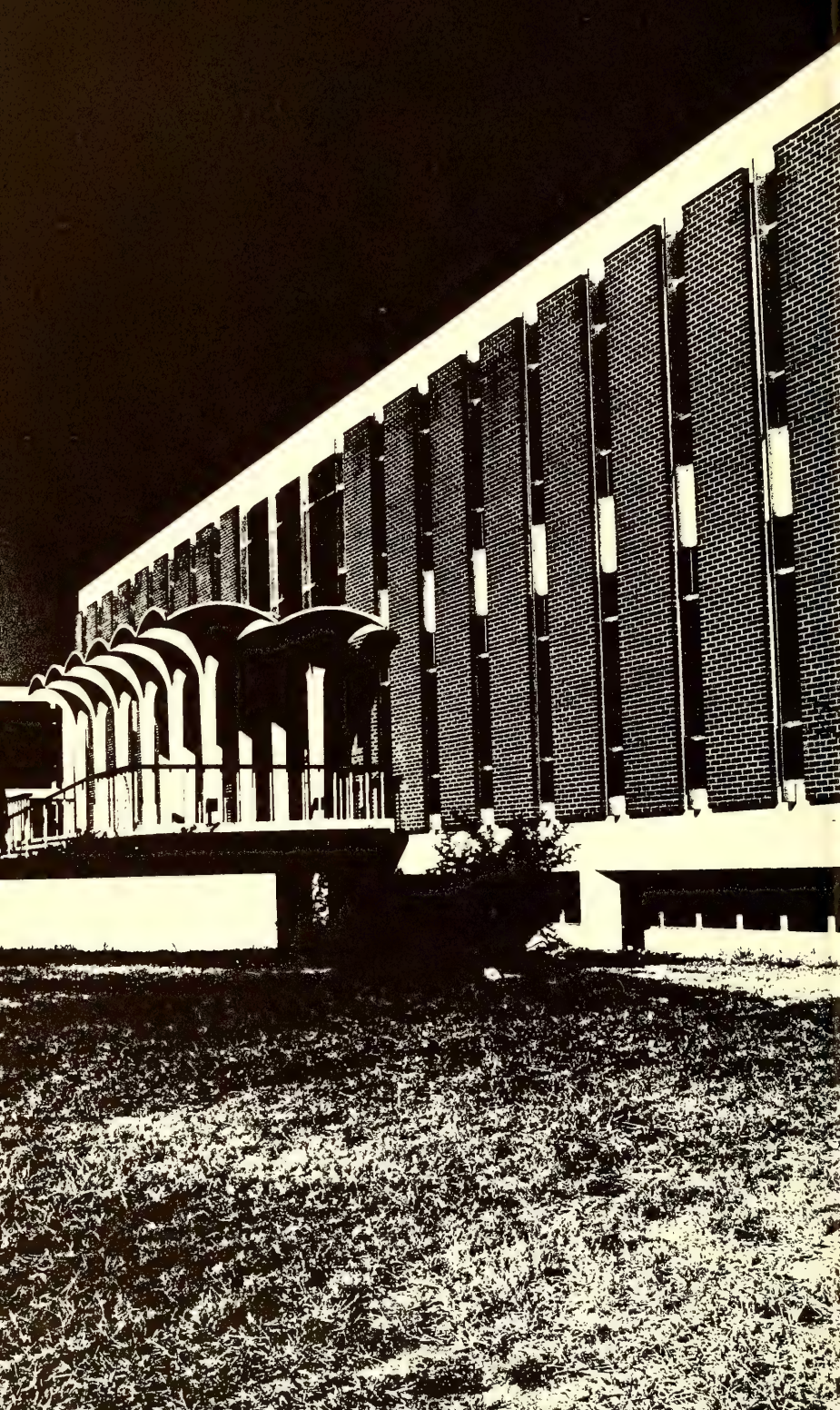


I. THE UNIVERSITY

PURPOSE

It is the long-range purpose of the University of North Carolina at Charlotte to undertake those functions of the University that may be allocated to it as the need of the State for additional University facilities develops. These functions, which have been allocated to one or more of the existing campuses at Chapel Hill, Greensboro, and Raleigh, were defined by the 1963 General Assembly as follows:

> "The University of North Carolina shall provide instruction in the liberal arts, fine arts, and sciences, and in the learned professions, including teaching, these being defined as those professions which rest upon advanced knowledge in the liberal arts and sciences; and shall be the primary state-supported agency for research in the liberal arts and sciences, pure and applied. The University shall provide instruction in the branches of learning relating to agriculture and the mechanic arts, and to other scientific and to classical studies. The University shall be the only institution in the State system of higher education authorized to award the doctor's degree. The University shall extend its influence and usefulness as far as possible to the persons of the State who are unable to avail themselves of its advantages as resident students, by extension courses, by lectures, and by such other means as may seem to them most effective."

It is the initial objective of the Charlotte Campus to provide undergraduate programs with standards comparable to those on the existing campuses and thereby lay the foundation for graduate and professional programs as rapidly as the resources become available. The University at Charlotte is now authorized to give both the degree of bachelor of arts and the degree of bachelor of science. Majors for both degrees are offered in biology, chemistry, and mathematics. In the fields of electrical and mechanical engineering, nursing, and accounting only the degree of bachelor of science is offered. The bachelor of arts degree is also offered with majors in business administration, economics, English, French, Spanish, history, political science, psychology, and sociology. Teacher education programs are offered in elementary education and in the various secondary subjects.

HISTORY

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The University of North Carolina at Charlotte came into being on July 1, 1965 as the result of legislation ratified by the 1965 General Assembly on March 3 making Charlotte College the fourth campus of the University.

The movement which led to the suggestion that the University expand to an additional campus began with the creation of the Governor's Commission on Education Beyond the High School in September 1961. One of the questions studied by the Commission was whether the need for higher education facilities in the more populous areas should be met by establishing additional campuses of the University in those areas. The President of the University referred a request from a joint subcommittee of the Governor's Commission on Education Beyond the High School to the Executive Committee of the Board of Trustees at its meeting on June 15, 1962 for an expression of its views respecting the recommendation of the Board of Trustees of Charlotte College that a fourth campus of the University of North Carolina be established at that institution. The Executive Committee asked the Chairman of the University Board to appoint a committee composed of trustees to study the proposal. A special committee was named by the Governor on July 23, 1962.

In accordance with the recommendations of both the Governor's Commission on Education Beyond the High School and the Board of Trustees of the University, the General Assembly of 1963 in the "Act to Promote and Encourage Education Beyond the High School in North Carolina" adopted a procedure for the expansion of the University.

The Executive Committee of the Board of Trustees on July 8, 1963 designated Mecklenburg County and its surrounding area as the first to be studied under the procedure outlined in the 1963 statute. Following the authorization of the study, the President of the University established the Advisory Council on Educational Policy composed of the vice presidents, the chancellors, and twelve professors from

the three then existing campuses. The Committee was first consulted concerning the study on January 28, 1964. It visited Charlotte College on February 12 and was kept informed as the study progressed. On November 16, 1964, the following conclusions, which had the endorsement of the Committee, were reported to the Board of Trustees:

1. The University of North Carolina should develop an additional campus as soon as adequate funds for this purpose are appropriated by the General Assembly.
2. The additional campus should be located in Mecklenburg County.
3. Charlotte College should be merged with the University of North Carolina and reorganized as the fourth campus of the University.

The Trustees on the same date passed a resolution making Charlotte College the fourth campus of the University subject to the approval of the North Carolina Board of Higher Education, which was received on January 15, 1965, and the action of the General Assembly, which followed on March 3, 1965.

Charlotte College had its inception in the aftermath of World War II when the Charlotte Center of the University of North Carolina was established to provide instruction for returning veterans. In 1949, following the emergency, the University planned to close the Center. The Charlotte Board of School Commissioners, however, saw a continued need for such an institution and took steps to establish a permanent college. The 1949 General Assembly passed a bill authorizing that Board to administer the College as part of the school system. In 1958 the College officially came under the North Carolina Community College System.

The voters of Charlotte and Mecklenburg County went to the polls on four occasions to vote upon themselves taxes for the support of the institution.

A 270-acre campus eight miles from the center of Charlotte on Highway 49 was purchased on February 4, 1959, as a permanent site for the College which had begun in borrowed space in Central High School. In the fall of 1961, the College moved to the new campus.

In May 1963 the General Assembly of North Carolina

changed the status of Charlotte College to that of a senior college fully supported by the State. The campus was expanded from the original 270 acres to 897 acres by the gift of approximately 500 acres by the Mecklenburg County Commissioners for the citizens of the county in the spring of 1964, supplemented by 127 acres purchased by the State of North Carolina in 1963.

The institution, which enrolled 1,815 students in the Fall of 1965, awarded its first baccalaureate degrees on June 6, 1965.

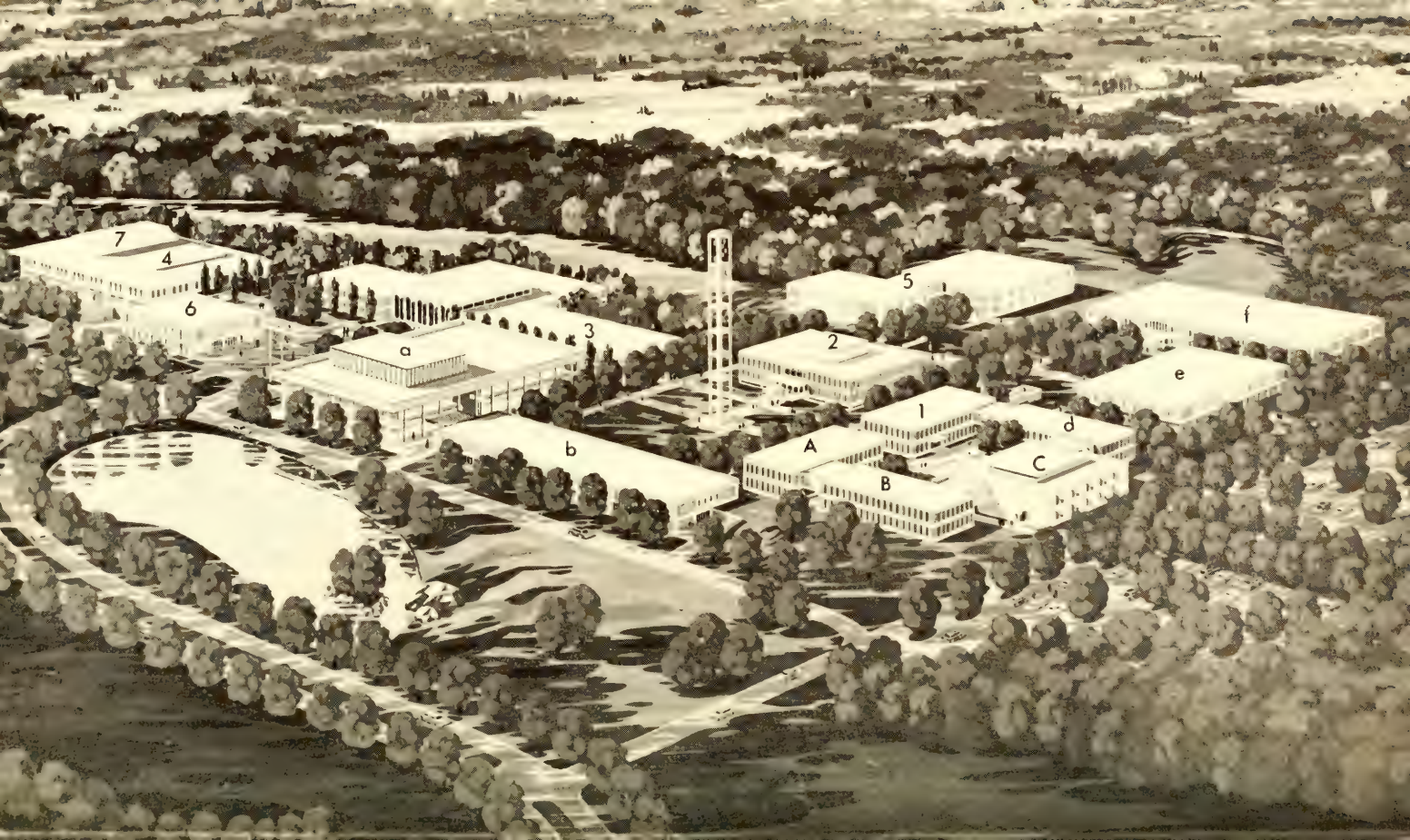
ACCREDITATION AND MEMBERSHIP

The University of North Carolina at Charlotte retained its accreditation as a junior college by the Southern Association of Colleges and Schools when it became a four-year college. It is now in the process of following the procedure required by the Association for accreditation as a senior institution. This process, which involves a self-study and visits by the accrediting agency, will continue to December, 1967, at which time the University expects to be accredited as a senior institution retroactive to 1965, the date of the first graduating class. The University of North Carolina at Charlotte is at present accredited as a senior college by the North Carolina Association of Colleges and Universities.

In the meantime, other universities in North Carolina are considering graduates of the Charlotte campus for admission on the same basis as graduates of accredited institutions. Furthermore, representative senior colleges in North Carolina are also accepting qualified students of the University of North Carolina at Charlotte who wish to transfer before graduation.

LOCATION

The University of North Carolina at Charlotte is located on an 897-acre campus eight miles from downtown Charlotte on Highway 49 near its intersection with Highway 29 northeast of Charlotte. With a population of 250,000, Charlotte, in Mecklenburg County (population 322,000), North Carolina, serves as a center of commerce, industry, and culture of a twenty-four county area.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UNIVERSITY BUILDINGS

Buildings Now in Use:

1—Liberal Arts

2—W. A. Kennedy Building (Science)

3—J. Murrey Atkins Library

4—University Union

A—Building A (Liberal Arts)

B—Building B (Liberal Arts)

C—Building C (Liberal Arts)

Buildings to be completed in Spring of 1966:

5—Engineering-Mathematics-Computer

6—Administration

7—University Union Addition

Future Buildings:

a—Auditorium

b—Fine Arts

d—Building D (Liberal Arts)

e—Classroom

f—Classroom

1966

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SCHEDULE OF CLASSES

Day classes are scheduled normally from 8:30 a.m. until 5:30 p.m., Monday through Friday.

Evening classes are scheduled from 6:00 p.m. until 10:30 p.m., Monday through Thursday.

ACADEMIC CALENDAR, 1966-1967

FALL SEMESTER

September 6-9	Tuesday-Friday	Orientation, advising and registration (Schedule to be furnished by Office of Registrar)
September 7	Wednesday	Faculty Meeting
September 11	Sunday	Open House for parents, entering students, and faculty
September 12	Monday	Classes begin
September 16	Friday	Last day to add courses for credit
October 7	Friday	Last day to drop courses without grade evaluation
October 31	Monday	Faculty report unsatisfactory grades
November 22	Tuesday	Last day of classes before Thanksgiving holiday
November 28	Monday	Classes resume
December 1	Thursday	Last day to file degree applications for May 28, 1967, commencement
December 5-8	Monday-Thursday	Preregistration for Spring Semester 1967
December 20	Tuesday	Last day of classes before Christmas holiday
January 4	Wednesday	Classes resume
January 11	Wednesday	Last day of classes
January 12	Thursday	Reading period
January 13	Friday	Final examinations begin
January 20	Friday	Final examinations end

SPRING SEMESTER

January 25-27	Wednesday-Friday	Orientation, advising and registration (Schedule to be furnished by Office of Registrar)
January 30	Monday	Classes begin
January 30-31	Monday-Tuesday	Graduate Record Examination (Required of all seniors)
February 3	Friday	Last day to add courses for credit
February 24	Friday	Last day to drop courses without grade evaluation
March 20	Monday	Faculty report unsatisfactory grades

March 23	Thursday	Last day of classes before Easter vacation
March 29	Wednesday	Classes resume
May 1-4	Monday-Thursday	Preregistration for Summer Session and Fall 1967
May 17	Wednesday	Last day of classes
May 18	Thursday	Reading period
May 19	Friday	Final examinations begin
May 26	Friday	Final examinations end
May 28	Sunday	Commencement

PREREGISTRATION FOR NEW STUDENTS, FALL 1967

July 10-12	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1967
August 14-16	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1967

SUMMER SESSION, 1967

First Term

June 5-6	Monday-Tuesday	Orientation, advising and registration (Schedule to be furnished by Office of Registrar)
June 7	Wednesday	First day of classes
June 9	Friday	Last day for registration
June 13	Tuesday	Last day to drop courses without grade evaluation
July 4	Tuesday	Holiday
July 10-12	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1967
July 12	Wednesday	Last day of classes
July 13-14	Thursday-Friday	Final examinations

Second Term

July 17	Monday	Orientation, advising and registration (Schedule to be furnished by Office of Registrar)
July 18	Tuesday	First day of classes
July 20	Thursday	Last day for registration
July 24	Monday	Last day to drop courses without grade evaluation
August 14-16	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1967
August 21	Monday	Last day of classes
August 22-23	Tuesday-Wednesday	Final examinations

II. ADMISSIONS AND ACADEMIC REGULATIONS

ADMISSIONS AND ACADEMIC REGULATIONS

REQUIREMENTS FOR ADMISSION

GENERAL ADMISSION REQUIREMENTS

1. Satisfactory evidence of good character.
2. Evidence of good physical and mental health.
3. Application fee of $10.00. (See page 30.)
4. Satisfactory record of scholastic achievement.
5. Additional requirements according to the type and level of admission as indicated below:

ADMISSION TO FRESHMAN STANDING

1. Applicants must present a record of graduation from an accredited high school or preparatory school. The form for the secondary school record which is sent to each applicant with his application blank must be executed and returned to the Office of Admissions by the high school principal or counselor.
2. Applicants must present sixteen acceptable units, as required by the degree program for which he applies. Only three of these sixteen units may be in nonacademic or vocational subjects, such as home economics, agriculture, shorthand, typewriting, or bookkeeping.
3. Satisfactory scores on the Scholastic Aptitude Tests of the College Entrance Examination Board. Each applicant for admission to the freshman class is required to take and make satisfactory scores on the Scholastic Aptitude Tests and to have the Educational Testing Service send the official examination score reports directly to the Director of Admissions. A high school senior applying to the University must take the Scholastic Aptitude Tests during his senior year, preferably in December or January.
4. The principal or counselor of the secondary school must furnish a satisfactory recommendation. Personal data is to be submitted directly to the Office of Admissions by the principal or counselor on the application form which is sent each applicant.
5. Application fee of $10.00. See page 30.

ADMISSION OF OUT-OF-STATE STUDENTS

The number of entering undergraduate students that may be admitted to the University from outside the state in any semester is limited to 15 per cent of the undergraduate students admitted during the semester.

Out-of-state students who are children of alumni of the University are expressly exempt from this limitation with the proviso that they may be required to pay the regular out-of-state tuition.

ADMISSION OF TRANSFER STUDENTS

TRANSFER FROM COLLEGE OR UNIVERSITY

1. An official transcript of record from each college or institution beyond the high school attended, showing honorable dismissal, should be sent directly to the Director of Admissions. Also recommendations should be sent from all institutions previously attended.
2. To be admitted as a non-freshman transfer student the applicant must have acquired sufficient credits at an accredited institution to have the equivalent of sophomore standing at The University of North Carolina at Charlotte. In no case shall less than 24 semester hours be considered the equivalent of sophomore standing.
3. To be admitted with transfer credit:
   a. An applicant must have a "C" average (2.0 based on an A grade being equated at 4 points according to our method of computation) or better on all the courses taken at the institution attended.
   b. An applicant must have at least a "C" grade average on all courses that are acceptable for evaluation.
   c. Only courses with a grade of "C" or better may be accepted for transfer credit.
4. Transfer students may be accepted as freshmen only when (1) they meet all entrance requirements of freshmen including satisfactory scores on the scholastic aptitude test of CEEB and (2) meet the conditions in 3. (a), (b) and (c) above.
5. Applicants may be asked to take special tests as a condition of admission.
6. No exceptions shall be made without the approval of the

faculty admissions committee of the University of North Carolina at Charlotte.

TRANSFER WITHIN THE CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

Transfer applicants from other campuses of the consolidated University of North Carolina are considered for admission on different qualitative academic requirements.

TRANSFER FROM JUNIOR COLLEGE

Transfer students entering the University after attending a junior college will receive no more than 66 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Arts degree and no more than 70 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Science and Bachelor of Science in Engineering degrees.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Prescribed courses for admission to candidacy for the degree of Bachelor of Arts or Bachelor of Science are:

English	4 units	Natural Science	1 unit[3]
Mathematics	2½ units[1]	Electives	4½ units
Foreign Language	2 units[2]		
United States History and Social Science	2 units	(Total)	16 units

[1] The 2½ units of Mathematics must include 1 unit of Plane Geometry or the equivalent in integrated courses.
[2] Two units in the same Foreign Language are required.
[3] The Natural Science presented must represent one year with laboratory.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Prescribed courses for admission to candidacy for the degree of Bachelor of Science in Engineering are:

English	4 units	Natural Science	1 to 2 units
United States History and Social Science	1 to 2 units	Electives	3½ to 7½ units
Mathematics	3 units[1]	(Total)	16 units

[1] The 3 units of Mathematics must include:

Algebra	1½ units
Plane and solid Geometry	1 unit
Trigonometry	½ unit

or the equivalent of these in integrated courses.

Engineering students are required to have at least 450 on the Mathematics portion of the Scholastic Aptitude Test or a satisfactory score on a locally administered Mathematics examination.

TERMINAL CURRICULA (ASSOCIATE IN ARTS)

The prescribed course requirements for admission to the terminal curricula in Business Administration and Accounting or in General Business and Secretarial Science are:

English	4 units	Natural Science	1 unit
Mathematics	1 to 2 units	Electives	7 to 9 units
United States History and Social Science	1 to 2 units	(Total)	16 units

DEFICIENCIES IN ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF SCIENCE, OR BACHELOR OF SCIENCE IN ENGINEERING

Admission with deficiencies in Mathematics and in Foreign Language may be granted to applicants whose records are otherwise acceptable.

Removal of deficiencies before registration for the first semester is desirable, but all deficiencies must be removed before registration for the third semester.

See Part III, *Degrees*, for Foreign Language requirements.

ADMISSION OF UNCLASSIFIED STUDENTS

An unclassified student is one who is earning University credit, but is not working toward the completion of a degree program at the University.

Students in this category must meet the same entrance requirements as regular students in order to earn University credits. As a rule, unclassified students must have the approval of the head of the department in which the courses are to be taken, to register for these courses.

Such students must abide by the same regulations as regular students. If, at a later date, an unclassified student changes to regular status, the credits earned while he was unclassified will be accepted only if he has satisfactorily completed the proper prerequisites.

ADMISSION OF SPECIAL STUDENTS

Students who do not wish to earn degree credit because of special reasons may enroll as special students. The usual admission requirements may be waived for such students, but after admission regular rules of scholarship will apply to them.

If special students wish to change to regular status at a later date, they must meet the same admissions requirements as regular students.

ADMISSION OF SPECIAL STUDENTS IN TEACHER EDUCATION

Students who hold a bachelor's degree and plan to work toward a teaching certificate or certificate renewal must meet the standards set by the University for admission as well as the requirements of the Department of Education. Students should consult with the Chairman of the Department of Education for further details. See page 72.

REGISTRATION FOR AUDITORS

Any student otherwise admitted may register for any class for audit, with the permission of the instructor. The fees are the same as for classes taken for University credit.

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit. They are, however, expected to attend class regularly. Notation of an audited class on the student's permanent record is made only with the permission of the instructor, but no grade will be given.

Adding or dropping an audit course is governed by the same procedures as adding or dropping a course for credit, and is processed in the same way through the registrar's office.

EXCEPTIONS TO ADMISSION REQUIREMENTS

Exceptions to admissions requirements are made only by the Committee on Admissions of the University.

VETERANS AND WAR ORPHANS EDUCATION

The University provides educational opportunities for veterans, war orphans, and children of totally disabled

service-connected veterans. Veterans seeking training under the provisions of Public Laws 894 and 87-815 (Veterans Vocational Rehabilitation Program), Public Law 550 (Veterans Readjustment Assistance Act of 1952), and war orphans seeking training under Public Law 634 (War Orphans Educational Assistance Act of 1956), and children of totally disabled service-connected veterans desiring benefits of Public Law 88-361 (extension of War Orphans Educational Assistance Act) must enroll for a minimum of 14 semester hours in order to receive full subsistence. Routines involving letters of eligibility, interruption of training, and the like are handled by the University through the Registrar's Office. Technical questions are referred to Mecklenburg County Veterans Service Office, 123 North Poplar Street, Charlotte; telephone number 333-8616.

Before the time of registration, each veteran or war orphan who wishes to enter the University should:

1. Make application for admission according to the procedure described on pages 14 to 19 of the catalogue. Forward to the Registrar transcripts of all previous high school and/or college courses completed before or after induction or as a part of Army or Navy basic training or specialized training program, and also records of courses taken by correspondence through the United States Armed Forces Institute. The latter records may be secured from the United States Armed Forces Institute, Madison, Wisconsin. All transcripts and records should be sent directly from the school, college, or other agency to the University.
2. Make application through the local V.A. or Veterans Service Office for a Certificate of Eligibility and Entitlement.

War orphans training under Public Law 634, children of totally disabled service-connected veterans training under Public Law 88-361 and veterans training under Public Law 550 will receive an educational and training allowance each month from the government to meet part of the expenses of their training and living costs. Tuition, fees, books, sup-

plies and equipment will not be paid by the government; instead, they will have to be paid out of the monthly educational and training allowance. Veterans training under Public Laws 894, 87-815 will be furnished tuition, fees, books and supplies as determined by the V.A. and school officials. A veteran or war orphan or child of a totally disabled service-connected veteran will receive his monthly allowance sometime after the end of each month of training completed. Before the Veterans Administration can pay him, the law requires a certification from the trainee and the University that he was enrolled in and was pursuing his course during that period. Veterans, war orphans and children of totally disabled service-connected veterans attending the University are required to maintain satisfactory academic achievement and attendance.

COLLEGE ENTRANCE EXAMINATION

All candidates for admission will be required to present satisfactory scores on the Scholastic Aptitude Section of the College Entrance Examination.

Arrangement for the tests is the responsibility of the applicant and should be made with the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey, as early as possible, preferably seven to eight weeks before the test date. Early registration allows time for clearing up possible irregularities which might otherwise delay the reports.

During the academic year, the College Entrance Examination Board will administer tests on the following dates:

Saturday, March 5, 1966	Saturday, January 14, 1967
Saturday, May 7, 1966	Saturday, March 4, 1967
Wednesday, July 9, 1966	Saturday, May 6, 1967
Saturday, December 3, 1966	Saturday, July 8, 1967

The Scholastic Aptitude Test will be given at 8:30 in the mornings, while the afternoons, beginning at 1:30, are reserved for not more than three Achievement Tests on any one date, or not more than any two Achievement Tests if the Writing Sample is being taken that day.

The *Bulletin of Information,* distributed without charge by the College Entrance Examination Board with applica-

tion blanks, will be sent to all secondary schools that present candidates for the tests. The applications may be used for any College Board administration involving the SAT, Achievement Tests, and the Writing Sample. Booklets describing the tests and giving sample questions, explanations and answers, and score interpretation booklets for counselors and students are distributed in quantity to secondary schools without charge.

ADVANCED PLACEMENT COURSE CREDIT

Any student may apply for course credit in appropriate subjects if he has had an Advanced Placement Course in secondary or preparatory school, and has received a score of four or five on the Advanced Placement Test. These tests are given in May of each year by the College Entrance Examination Board.

ACADEMIC REGULATIONS

GRADING

The unit of measurement of university work is the semester hour. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour.

Letters are used to indicate the quality of work done. Each letter carries a quality point value for each semester hour of work attempted. The meaning of each letter with its accompanying quality point factor is:

Letter	Description	Quality Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	0
W	Withdrawal	0

QUALITY POINT RATIO

A student's quality point ratio is determined by multiplying the number of quality points for each grade by the number of hours received in that course and adding all accumulated quality points together, then dividing by the total number of hours the student has attempted, except those for which the student has received a grade of W.

(See Requirements for Continued Enrollment, p. 23-24.)

GRADE OF I

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester in residence, but no later than twelve months after the end of the term in which the I was assigned. If the I is not removed during the specified time, a grade of F is automatically assigned.

GRADE OF W

The grade of W will be given for a course dropped on or before the last day to drop courses without grade evaluation. When a student withdraws after that date, as indicated on the Academic Calendar, but before the end of a semester, and if in the opinion of his instructor he is passing at the time of withdrawal, he will receive the grade of W. Courses given the grade of W do not count as hours attempted.

WITHDRAWAL

Any student who leaves the University, except after the close of a semester, without written notification to the Registration Office, will receive a mark of F in all courses.

ATTENDANCE

Each student is required to attend all sessions of the courses in which he is enrolled because he is held responsible for all assignments, including tests. No class cuts are allowed and no make-up tests are given.

Even in the event of personal illness or other unavoid-

able circumstances, no student will be given credit for any course unless he has attended at least 75 per cent of the total class hours of instruction.

CLASSIFICATION OF STUDENTS

At the beginning of the fall semester regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows: Freshman, 1-24 semester hours; sophomore, 25-51 semester hours; junior, 52-89 semester hours; senior, 90 or more semester hours.

REQUIREMENTS FOR CONTINUED ENROLLMENT

Any student who is not making satisfactory progress as defined below will have his enrollment at the University of North Carolina at Charlotte suspended.

A student whose quality point ratio for one semester is less than 1.25 on all hours attempted at the University of North Carolina at Charlotte will be placed on academic probation. If his quality point ratio on all hours attempted at the University of North Carolina at Charlotte is less than 1.25 in each of two consecutive semesters of his enrollment, his enrollment at the University will be suspended.

At the end of the semester in which a student's earned semester-hour total reaches 25 semester hours, including transfer credit, he must have at least a 1.5 overall quality point ratio on all hours attempted at the University of North Carolina at Charlotte or his enrollment at the University will be suspended.

At the end of the semester in which a student's semester-hour total reaches 52 semester hours, including transfer credit, he must have at least a 1.75 overall quality point ratio on all hours attempted at the University of North Carolina at Charlotte or his enrollment at the University will be suspended.

After this point, a student is expected to make at least a 2.0 quality point ratio for each semester. A student at this level who makes less than a 2.0 ratio in any given semester will be placed on academic probation. If he makes less than a 2.0 ratio in two successive semesters, his enrollment at the University will be suspended.

At the end of the semester in which a student's semester hour total reaches 90 semester hours, including transfer credit, he must have at least a 1.9 overall quality point ratio on all hours attempted at the University of North Carolina at Charlotte. Otherwise, his enrollment at the University will be suspended.

REQUIREMENTS FOR REMOVAL OF SUSPENSION

No student under suspension will be readmitted to the University if he does not completely satisfy the entrance requirements as stated elsewhere in this catalog.

Otherwise, if a student is suspended by reason of failure to satisfy the requirements for continued enrollment as stated above, he will be ineligible for readmission until the expiration of the next full semester following his suspension. After that time, he will be readmitted on academic probation. If he obtains a 2.0 quality point ratio during his next semester of enrollment, he will be eligible to continue his enrollment at the University, under probation.

The probation will be lifted whenever his quality point ratio is sufficient to satisfy the requirements for continued enrollment as stated above, provided his quality point ratio reaches that level within two semesters or within the satisfactory completion of 15 semester hours of work, whichever happens last. A student whose probation has not been lifted by that time, will not be eligible to continue at the University.

If a student fails to satisfy the conditions of his suspensions, or if having once been suspended, he again fails to satisfy the requirements for continued enrollment, he will not again be eligible for admission to the University.

REQUIREMENTS FOR READMISSION

Students entitled to honorable dismissal and in good standing who were previously enrolled at the University of North Carolina at Charlotte, but who did not complete the previous semester at the University, should apply for readmission. If students have earned credits at another college or university since last attending the University of North Carolina at Charlotte, they must submit an official

transcript of credit from that institution for consideration for readmission.

REGISTRATION FOR CREDIT

Registration for credit in any course is limited to the first week of the semester. No credit will be given to a student for a course unless he is properly registered for it.

COURSE LOAD

Five subjects of not less than fifteen semester hours total constitute a normal full semester program, but a student may register for less work. Course load is dependent on two factors: the scholastic ability of the student as reflected by his scholastic record, and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than 7 semester hours.

CHANGING OR DROPPING A COURSE

In order to change or drop a course, a student must secure written permission from his advisor and the Registrar and pay a fee of $1.00 for each course dropped or added after the registration period. No student will be permitted to change a course after the first week of a semester.

A student who withdraws from a course after the last day to drop courses without grade evaluation, but before the end of a semester, will receive a grade of W if in the opinion of his instructor he is passing at the time of withdrawal, and will receive a grade of F if in the opinion of his instructor the student is failing the course at the time of withdrawal. (See *Grade of W.*)

SELECTION AND CHANGING OF CURRICULUM

Each candidate for a University degree must, at the time of entrance, apply for and be admitted to a specific degree curriculum. For the Bachelor of Arts and Bachelor of Science degrees, students must declare their choices of majors not later than the second semester of their sophomore

year. A student can change from one degree or one major to another only with the recommendation of his advisor and the approval of the Academic Dean.

REQUIREMENTS FOR GRADUATION

All Seniors must complete such portions of the Graduate Record Examination as are required by the University. These examinations should be taken on the dates indicated in the Academic Calendar.

A minimum of 126 semester hours of work is required for graduation with a baccalaureate degree. For information on four-year degrees see pages 40-47.

A minimum of 60 semester hours of work is required for graduation with an Associate in Arts Degree. For information on two-year degrees see page 47.

RESIDENCE REQUIREMENTS

The minimum residence requirement for a Bachelor's Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University unless exception to this rule be approved by the department concerned and the academic dean.

The minimum residence requirement for the Associate in Arts Degree at the University is 30 semester hours.

TRANSCRIPTS OF RECORDS

Upon request of the student, a transcript of academic credits earned at the University will be sent to any other college or university.

Each student is entitled to one official transcript of his work, provided that all accounts with the University have been settled satisfactorily. A student requesting an additional transcript should enclose one dollar for this service.

PARKING

Regular parking is restricted to faculty and students as outlined in the Student Handbook. A limited number of

spaces are provided for visitors to the campus. Student and faculty automobiles must be registered with the University, and registration decals must be properly displayed.

STUDENT RESPONSIBILITY

Every student is responsible for the proper completion of his academic program, for familiarity with all requirements of the University catalogue under which he intends to graduate, for maintaining the grade average required, and for meeting all other degree requirements, including attendance at the commencement exercises at which he will receive his diploma. His advisor will counsel him, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment, and to be familiar with the information contained in the Weekly Newsletter. He is responsible for maintaining communication with the University, by keeping on file with the Records Office at all times his current address, including ZIP code, and telephone number.

Every student, while he is associated with the University, is expected to comport himself in campus and community life in a manner that will reflect credit upon the University.

TUITION AND FEES

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

Tuition and fees are due and payable on the day of registration. Checks and money orders should be made payable to the University of North Carolina at Charlotte.

Students taking seven or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking less than seven hours of work during a regular semester will be charged a prorated portion of tuition and fees as specified below:

	EACH SEMESTER	
	In-State Students	Out-of-State Students
Seven or More Semester Hours		
Tuition	$ 87.50	$300.00
General Fee	62.50	62.50
Total	$150.00	$362.50
Five or Six Semester Hours		
Tuition	$ 43.75	$150.00
General Fee	31.25	31.25
Total	$ 75.00	$181.25
Four or Fewer Semester Hours		
Tuition	$ 22.00	$ 75.00
General Fee	16.00	16.00
Total	$ 38.00	$ 91.00

The University reserves the right to make, with the approval of the proper authorities, changes in tuition and other fees at any time.

No extra fees are charged for laboratory courses as such. However, an extra fee for individual voice study is charged in the amount of $45.00 per semester for one hour credit.

The estimated average cost of books and supplies per semester is about $50.00. Beginning students in engineering may expect an additional cost of $50.00 to $60.00 for drawing instruments, slide rule, and supplies. Uniforms and supplies for nurses will cost approximately $100.00.

A fee of $1.00 is charged for each course dropped or added after the registration period.

RESIDENCE STATUS FOR TUITION PAYMENT

The tuition charge for legal residents of North Carolina is less than for nonresidents. A legal resident of North

Carolina is one who has his domicile in this state. It is important that each applicant for admission and each enrolled student know his residence status for tuition payment and understand the regulations governing residence status. The following regulations cover most factual situations:

1) A person twenty-one years of age or older is not deemed eligible for the lower tuition rate unless he has maintained his legal residence in North Carolina for at least the six months next preceding the date of his first enrollment in an institution of higher education in this State.

2) The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is still living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

3) The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident minor student at the time of his first enrollment whose parents have subsequently established legal residence in North Carolina; and (b) in the case of a resident who abandons his legal residence in North Carolina. In either case, the appropriate tuition rate will become effective at the beginning of the semester or term next following the date of change of residence status.

4) The legal residence of a wife follows that of her husband, except that a woman student currently enrolled in this institution as a resident may continue as a resident even though she marry a nonresident.

5) Military personnel attached to military posts or reservations in North Carolina are not considered eligible for the lower tuition rate unless they have maintained a legal residence in the state for at least the six months next preceding the date of first enrollment in an institution of higher education in the State.

6) Aliens lawfully admitted to the United States for permanent residence who have established a legal residence in North Carolina according to paragraphs numbered 1, 2, or 4, above, are eligible for the lower tuition rate.

7) Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the lower tuition rate.

The furnishing of incomplete or incorrect information regarding residence may result in the student's dismissal from the University. The Registration Office determines each student's residence status on the basis of existing information and interpretation of regulations.

APPLICATION FEE

Applicants for admission are required to submit a $10.00 application fee with the application form. The fee will be applied to the student's general fees in the semester for which application is made. The fee is not refunded to those who fail to complete their applications, those who are accepted and fail to enroll, and those denied admission.

LATE REGISTRATION FEE

A non-refundable fee of $10.00 will be charged for those registering after the designated registration period each semester.

GRADUATION FEE

Each member of the graduating class must pay a graduation fee of $10.00 at the beginning of the spring semester of the year in which he expects to graduate. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees in absentia.

STUDENT ACTIVITIES

A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to most athletic contests, dramatic productions, Union-sponsored activities, social and entertainment functions, and for subscriptions to the newspaper and literary magazine. The yearbook is provided free to all students taking seven or more semester hours of work each semester during the academic year. Students taking six or fewer semester hours of work each semester during the academic year may obtain a yearbook upon payment of $5.00.

REFUNDS

In case of official withdrawal during the semester, $10.00 of the general fee is not refundable.

The elapsed time is determined beginning with the first day of classes and extending to the date the student officially files his intention to drop the course or withdraw from school.

Elapsed Time	Per Cent of Refund
First 10 calendar days	80
Second 10 calendar days	60
Third 10 calendar days	40
Fourth 10 calendar days	20
After 40 days	None

FINANCIAL AID

Financial assistance is available to University students in several forms: scholarships, grants-in-aid, loans, and part-time employment. The University makes every effort within the limits of its available resources to encourage and assist students with seriousness of purpose to secure a University education. A financial problem should not deter a student from submitting an application for admission.

HOW TO APPLY:

The University of North Carolina at Charlotte participates in the College Scholarship Service (CSS) of the

College Entrance Examination Board. Together with other participants in CSS, we subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial assistance are required to submit a copy of the Parents Confidential Statement (PCS) form to the College Scholarship Service, designating the University of North Carolina at Charlotte as one of the recipients. The PCS should be submitted prior to August 15 in order to assure that it can be processed in time for an award to be made before Fall registration. The PCS form may be obtained from a secondary school, the College Scholarship Service, P. O. Box 176, Princeton, New Jersey 08540, or the Office of Student Affairs, University of North Carolina at Charlotte.

Once a student has filed the Parents' Confidential Statement, he will be considered for all available scholarships, grants-in-aid, or loans. The University seeks to assign the kind of aid best suited to the needs and qualifications of the applicant. In general, the awards are approved in amounts proportionate to the demonstrated need of the student, and his satisfactory record of achievement and school citizenship. The average grant provides tuition and fees, approximately $250.

Renewal of financial aid is based upon a student's making a clearly satisfactory record. After enrollment, the student should make application at the end of each school year for financial aid in the next year.

As in the past, the State of North Carolina is making available this year a sum of money to be used for grants to deserving students.

LOANS

The Emergency Loan Fund was established in 1958 to provide funds which students may borrow for short-term emergencies. Students may borrow up to $25 for 30 days. There is a $.25 service charge, but no interest is charged on the loan.

The Student Loan Fund provides loans of up to $100 for a year at an interest rate of 3 per cent per annum.

The National Defense Student Loan Fund is available at the University. Full-time students in need of financial assistance may borrow up to $1,000 each year for university-related expenses such as tuition, fees, books, and transportation. The interest rate is 3 per cent per annum, but no interest is charged while the student is enrolled as a full-time student at the University. Loans must be repaid within 10 years.

Prospective Teachers Scholarship Loan Fund provides funds for 300 prospective teachers each year. The loans are made in the amount of not more than $350. The fund is administered by the State Superintendent of Public Instruction, Raleigh, North Carolina. All scholarship loans are evidenced by notes which bear interest at the rate of 4 per cent per annum from September 1 following fulfillment by a prospective teacher of the requirements for a teacher's certificate based upon the bachelor's degree. Scholarship loans, together with 4 per cent thereon, *may be cancelled by teaching one full year in North Carolina for each annual scholarship received.* Consideration for a scholarship loan is given to the aptitude, purposefulness, scholarship, character, and financial need of the applicant. For detailed information about the program, write to Prospective Teachers Scholarship Loan Fund, State Department of Public Instruction, Raleigh, North Carolina.

Other Loan Funds are made available by clubs and individuals. These include the A.A.U.W. Loan Fund, the Allie M. St. Clair Loan Fund, the Annas Loan Fund, the Charlotte Kiwanis Club Loan Fund, the Ebersole Fund, the Lions Club Loan Fund, and the Rotary Club Loan Fund.

Application blanks and details on loan funds may be obtained from the Dean of Student Affairs, The University of North Carolina at Charlotte, Post Office Box 20428, Charlotte, North Carolina 28202.

SCHOLARSHIPS

Altrusa Club of Charlotte
American Business Women's Association
  Charlotte Chapter
  Mecklenburg Chapter
J. Murrey Atkins

Bonnie E. Cone
Brycie Baber
Carolina Yarn Association
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women's Club
Charlotte Civitan Club
Charlotte-Mecklenburg North Carolina Education Association
Charlotte Music Club
Charlotte *News*
Charlotte *Observer*
Charlotte Sales and Marketing Executives, Inc.
Concrete Materials, Inc.
Concrete Supply Company
Corporate Insurers Service, Inc.
Eastern Airlines Management Council
Fidelis Bible Class, Myers Park Baptist Church
George S. Goodyear Foundation
Arthur P. Harris
Harrison-Wright Company
Drs. Aubrey and Cecil Hawes
Jefferson Standard Foundation
Junior Achievement
Knight Publishing Company
McEwen
Mecklenburg Junior Chamber of Commerce
Mecklenburg Kiwanis Club
Mecklenburg County Medical Society
Mecklenburg Pharmaceutical Society Auxiliary
Mitchell and Becker
Mumaw Engineering
National Association of Accountants
National Secretaries Association
North Carolina Professional Engineers' Society, Piedmont Chapter
North Carolina Professional Engineers' Society, Piedmont Chapter, Ladies Auxiliary
Panhellenic Congress of Charlotte
Pepsi Cola Company of Charlotte
Pilot Club
Professional Construction Estimators' Association

Cecil Prince
Quota Club of Charlotte
Schoenith Foundation
A. K. Sutton
United Select Foods
Cliff M. Westbrook
Earle Whitton
Mr. and Mrs. J. L. Winningham
Woman's Allied Auxiliary,
North Carolina Motor Carriers' Association
Zonta Club of Charlotte

AWARDS

The Bonnie E. Cone Award is given annually to a freshman student who has demonstrated fine college spirit and made a significant contribution to college life.

The Bill Mitchell Award. Two members of the graduating class who have shown outstanding qualities of scholarship and leadership and maintained an attitude of unselfish interest in the welfare of their fellow students and of the University as a whole are selected for the award.

The Chemistry Award is presented annually to the student with the highest scholastic average in freshman chemistry.

The Mathematics Award is given annually to the student whose achievement in mathematics during his freshman year is judged most outstanding.

The Physics Award is given annually to the outstanding student in introductory physics.

The James W. Grey Award is given annually to a student who has maintained an above average scholastic average while participating in programs of organized sports and physical fitness at the University.

The Charlotte Panhellenic Award. In considering young women for the Panhellenic Award, acceptance in the University Community is the chief factor. The candidate should be an exemplary student: in conduct, poised and gracious; in service, able and cooperative; in scholarship, superior and enthusiastic.

The Education Award is presented annually to two members of the graduating class who have shown qualities of leadership and scholarship and who are planning to enter the teaching profession.

HONORS

DEAN'S LIST

The Dean's List is a record of all students whose academic record merits special recognition from the University. In order to qualify for the Dean's List, a student must take a full program of five subjects (at least fifteen semester hours of work) and maintain a quality point average of at least 3.00 (a grade of B) with no grade lower than a C.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages are honored by being named Commencement Marshals. The marshal who has the best academic record is designated Chief Marshal.

III. DEGREES

DEGREES OFFERED

Bachelor of Arts (B.A.):

- Biology
- Business Administration
- Chemistry
- Economics
- English
- French
- History
- Mathematics
- Political Science
- Psychology
- Sociology
- Spanish

Bachelor of Science (B.S.):

- Accounting
- Biology
- Chemistry
- Mathematics
- Nursing

Bachelor of Science in Engineering

Associate in Arts (A.A.):

- Business Administration and Accounting
- General Business and Secretarial Administration

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

The degree of Bachelor of Arts is offered with majors in the following fields: Biology, Business Administration, Chemistry, Economics, English, French, History, Mathematics, Political Science, Psychology, Sociology, and Spanish.

COURSE REQUIREMENTS

	Semester Hours
English 101, 102, 201, and 202, 203, or 204. Students making a sufficiently high placement	12

test score in English are exempted from English 101.

History 101 and 102.	6
Mathematics, 6 hours, including either 102 or 141.	6
Natural Science, 16 hours, consisting of four laboratory courses of at least 4 hours each. At least one of these must be taken from each of the following groups: Group A: Chemistry, Physics, Geology, Geography 101. Group B: Biology, Psychology 201. Psychology 201 may be offered as a Natural Science or as a Social Science, but not as both.	16
Social Science, 9 hours, taken from: Economics, History, Political Science, Anthropology, Sociology, Psychology, Philosophy, or Religion. A course in Philosophy or Religion may be offered as a Social Science or as a Humanity, but not as both.	9
Humanities, 6 hours, taken from: Art Appreciation, Art History; English, French, German, or Spanish literature; Music Appreciation; Philosophy, or Religion. A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.	6
Courses in the major field: see the requirements of the major department.	—
Related work: 15 to 21 hours of work related to the major field, as required by the major department.	15-21
Foreign Language: completion of one semester of a foreign language at the 300 level. See Foreign Language Requirement, page 43 ff.	—

SEMESTER HOUR REQUIREMENTS

Total required: a minimum of 126 hours, but see the requirements of the major program.

Maximum number of hours permitted from a single department to count toward the degree: 36 semester hours.

Related work: 15 to 21 hours, as required by the major department, but in no more than two departments other than the major.

Hours in the major department: see the requirements of that department.

QUALITY POINT REQUIREMENTS

In all courses attempted at the University, a minimum overall quality point average of 2.00 is required.

In all courses in the major department, a minimum overall quality point average of 2.00 is required.

COURSE LEVEL REQUIREMENT

Junior and Senior students must have the consent of their major department to enroll in any course below the 300 level, not required in their degree program.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered with majors in the following fields of study: Accounting, Biology, Chemistry, Mathematics, and Nursing.

GENERAL DEGREE REQUIREMENTS:

All general degree requirements are the same for the degree of Bachelor of Science as for the degree of Bachelor of Arts, with the following exceptions: The maximum number of hours permitted from a single department to count toward the degree of Bachelor of Science is 46 semester hours; related work of 15-25 hours is required.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

The following suggested program for the freshman and sophomore years is designed to assist new students in making out their initial programs. It is planned to initiate the satisfaction of basic degree requirements, and will apply to most curricula. However, the student must consult the major department for modifications of this program designed to coordinate with the entire major degree program.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

Course	Number	Semester Hours	Total
	FRESHMAN		
	First Semester		
English	101	3	
History	101	3	
Mathematics	101	3	
Natural Science		4	
Foreign Language	201*	3	
			16
	Second Semester		
English	102	3	
History	102	3	
Mathematics	102	3	
Natural Science		4	
Foreign Language	202*	3	
			16
			32
	SOPHOMORE		
	First Semester		
English	201	3	
Social Science (or Humanities)		3	
Natural Science		4	
Foreign Language	300 level	3	
Elective		3	
			16
	Second Semester		
English	202 (or 203 or 204)	3	
Social Science (or Humanities)		6	
Natural Science		4	
Elective		3	
			16
			32

* See foreign language requirements, below.

FOREIGN LANGUAGE REQUIREMENTS:

I. On entering the University of North Carolina at Charlotte, students who present for admission one unit of a high school language, or less than one unit, must

complete courses 101, 102, 201, 202, and one semester at the 300 level in a foreign language. No credit will be given for courses 101 and 102, when used to make up an entrance deficiency.

II. Students who present one or more units of a high school language for admission should take the language placement test during the orientation period, when they intend to continue the same language at the University. On the basis of these test scores, students will be assigned to the foreign language course that corresponds to their competence as measured by these standardized tests.

A. Student continuing the same language as that presented for admission:
   1. If he places by test in 201, he will be required to complete courses 201, 202, and one semester at the 300 level.
   2. If he places in 202, he will be required to take only 202 and one semester at the 300 level.
   3. If he places below the 200 level, he should take without degree credit 102, or 101 and 102, as the case may be, in order to be adequately prepared to continue with courses 201, 202, and a 300 course.

B. A student changing to a language other than that presented for admission, or presenting for admission a foreign language not taught at the University of North Carolina at Charlotte, will be required to complete courses 101, 102, 201, 202, and one semester at the 300 level in a new language, with the following exceptions:
   1. A student presenting two or more years of high school language for entrance credit, who enters a curriculum that requires a language different from the one he presents, may complete his requirement by completing course 202 in the required language.
   2. A student presenting for admission two years of high school Latin or Greek, or any other foreign language not taught at the University,

may satisfy the language requirement by completing course 202 in a modern foreign language.

III. *Transfer Student.*

A. A student transferring to The University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he has completed satisfactorily two years of high school foreign language.

B. It is recommended that students transferring from other colleges take language placement tests in the language they intend to continue at the University, and that they register for the course in which they are placed according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Majors in: Electrical Engineering and Mechanical Engineering.

COURSE REQUIREMENTS: (See the curricula and course descriptions on pages 78 to 89.)

Common requirements for majors in Electrical Engineering or Mechanical Engineering

English 101, 102, 201 or 205	9
History 101 and 102	6
Mathematics 141, 142, 241, 242, 371, and 372	22
Chemistry 101 and 102	8
Economics 201	3
Physics 201, 202, and 311	11
Engineering 100 and 111	3
Engineering Mechanics 214	3
Mechanical Engineering 311	3
Total common requirements, semester hours:	68

Further required and elective courses for Electrical Engineering:

Electrical Engineering 211, 212, 252, 311, 312, 321, 332, 351, 352, 421, 431, 441, 442, and 452	35
Electrical Engineering electives, three courses	9
Engineering Mechanics 291	3
Mechanical Engineering 392	3
Humanities and Social Science electives, four courses	12
Technical or Humanities electives, two courses	6
Total further requirements for electrical engineering, semester hrs.	68

Further required and elective courses for Mechanical Engineering:

Mechanical Engineering 261, 312, 321, 322, 351, 352, 411, 421, 422, 451, and 452	22
Mechanical Engineering electives, three courses	10
Engineering Mechanics 211, 212, 312	9
Engineering 112	1
Electrical Engineering 391 and 392	8
Humanities and Social Science electives, 3 courses	9
Technical or Humanities electives, three courses	9
Total further requirements for Mechanical Engineering, semester hrs.	71

SEMESTER HOUR REQUIREMENTS

Total required in Electrical Engineering or in Mechanical Engineering: 136 semester hours.

QUALITY POINT REQUIREMENTS

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

All courses in engineering: a minimum overall quality-point average of 2.00 is required.

The requirements for continued enrollment are as shown on pages 23-24.

COURSE LEVEL REQUIREMENTS

Junior and Senior students must have the consent of the Engineering Department to enroll in any 100 or 200 courses not required in their degree program. The Engineering Electives, the Humanities and Social Science Electives, and the Technical or Humanities Electives will ordinarily consist of sequences of related courses and are

subject to the prior approval of the Engineering Department. See the footnotes to the engineering curricula, pages 80 and 85.

REQUIREMENTS FOR THE DEGREE OF ASSOCIATE IN ARTS

Available in: Business Administration and Accounting; General Business and Secretarial Administration.

Note: 1. No new students will be admitted to this degree program after September 1966.
2. The program will be terminated in 1968.

COURSE REQUIREMENTS:

See Department of Economics and Business Administration.

SEMESTER HOUR REQUIREMENT:

Minimum: 60 hours.

Minimum that must be earned at the University of North Carolina at Charlotte: 30 hours.

QUALITY POINT REQUIREMENTS:

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

PRE-PROFESSIONAL AND PROFESSIONAL CURRICULA

Students who plan to enter a professional school are advised to plan their program so that general requirements for the Bachelor of Arts or Bachelor of Science degree are met in addition to the requirements for the professional program being considered. Candidates for the Bachelor of Arts or Bachelor of Science degree will encounter no difficulty in completing the work for entrance into the professional program while satisfying the requirements for the degree. Pre-professional students should recognize that a broad cultural education is important, and that as many courses as possible should be taken in the humanities, arts,

social sciences, and natural sciences. The prospective professional student should inform his advisor of his plans, to ensure that all prescribed work will be completed. The student should familiarize himself with the entrance requirements of the particular school that he hopes to attend.

PRE-MEDICAL AND PRE-DENTAL DEGREE PROGRAMS

See Biology Department, degrees and course offerings.
See Chemistry Department, page 57.

PRE-SOCIAL WORK CURRICULUM

See Psychology Department, page 120.
See Sociology Department, page 122.

THE EVENING PROGRAM

The University administers the evening program as an integral part of its total program. Any course in the catalogue may be taught in the evening if there is sufficient demand for it. Each course offered in the evening is taught at the same academic level as in the day program and requires the same level of achievement. The exact schedule of time and place for evening courses is contained in special bulletins which may be procured upon request.

For information concerning the evening program, write or call:

Director of Evening Program
University of North Carolina at Charlotte
P. O. Box 20428
Charlotte, North Carolina 28202

Telephone: 596-5970

THE SUMMER SESSION

The Summer Session is designed to present courses of the same quality as those offered in the regular academic year. These courses—selected according to the needs of regular students, students transferring from other institutions, and students of the community—are presented in two terms consisting of six weeks each.

For detailed information on the Summer Session, write:

Director of Summer Session
University of North Carolina at Charlotte
P. O. Box 20428
Charlotte, North Carolina 28202

Telephone: 596-5970

IV. COURSES OF STUDY

Suggested Curriculum

A Major in Biology, leading to a Bachelor of Arts or Bachelor of Science Degree*

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 201 or 203 or 301	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (Hum.)	3
Elective (S.S.)	3	Elective (S.S.)	3
Related Work	4	Related Work	4
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Related Work	4
Elective (S.S.)	3	Elective	3
Related Work	4		15
Elective	3		
	17		

SENIOR YEAR

Elective (Biol.)	8	Elective (Biol.)	4
Biology Seminar	1	Electives	12
Elective	6		16
	15	Total Hours: 129	

* The B.A. and B.S. degrees differ in the number of hours required in Biology. A student wishing to receive a B.S. Degree must take two additional courses in Biology (8 hours) in place of the free electives listed above. Related work consists of 16 semester hours as approved by the department. It is recommended that a biology major include 2 courses in Physics, 2 courses in Organic Chemistry, at least 1 course in Geography or Geology, and Mathematics 221 in his program. Students who may attend graduate school should choose French, German or Russian as a Foreign Language.

Suggested curriculum for Pre-Medicine and Pre-Dentistry, leading to a Bachelor of Arts Degree in Biology with related work in Chemistry.

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 203 or 301	4
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (S.S.)	3
Elective (S.S.)	3	Elective	3
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Physics 102	4
Mathematics 221	3	Psychology 201	4
Physics 101	4		16
Elective	3		
	17		

SENIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Biology Seminar	1	Elective (Humanities)	3
Chemistry 303	4	Elective (S.S.)	3
Geography or Geology	4		14
Philosophy	3	Total Hours: 129	
	16		

101. INTRODUCTORY BIOLOGY. (4) The introductory course is designed to acquaint the student with the fundamental principles of life. The molecular and cellular basis of biology is stressed, with emphasis on the following: matter and energy, protoplasm, cell structure, cell physiology, cell reproduction, genetics and concepts of evolution. Three lecture hours and one laboratory period of three hours a week.

201. PLANT MORPHOLOGY. (4) Prerequisite: Biology 101. Selected life histories of major plant groups, stressing relationships, reproduction, and classification of biologically and economically important plant groups. Three lecture hours and one laboratory period of three hours a week.

202. VERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of the vertebrates stressing classification, morphology, anatomy, distribution, life histories, and economic importance. Two lecture hours and two laboratory periods of two hours each a week.

203. MICROBIOLOGY. (4) Prerequisite: Biology 101. A study of the microscopic plants and animals stressing fundamentals of morphology, physiology, culture methods and methods of control. Three lecture hours and one laboratory period of three hours a week.

204. HUMAN ANATOMY AND PHYSIOLOGY. (4) Prerequisite: Biology 101. A course stressing the basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours and one laboratory period of three hours a week.

205. GENERAL PHYSIOLOGY. (4) Prerequisite: Biology 202. A study of the roles of the organ systems of animals in the physiology of growth, metabolism, movement, reproduction and integration. Three lecture hours and one laboratory period of three hours a week.

301. INVERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of representative invertebrate organisms. Phylogeny, morphology, physiology, ecology, economic and biological significance of invertebrates are considered. Three lecture hours and one laboratory period of three hours a week.

302. GENETICS. (4) Prerequisite: Biology 201 or 202. A course designed to acquaint the student of heredity with the facts and principles of inheritance and their consequences. Human inheritance, plant and animal breeding, especially the practical applications pertinent to improvements in offspring are emphasized. Three lecture hours and one laboratory period of three hours a week.

303. COMPARATIVE VERTEBRATE ANATOMY. (4) Prerequisite: Biology 202. Comparative studies of phylogeny and functional anatomy of vertebrates are emphasized. Three lecture hours and one laboratory period of three hours a week.

304. PLANT SYSTEMATICS. (4) Prerequisite: Biology 201. A study of the classification, phylogenetic relationships, and structure of the seed plants. Special emphasis is placed upon their biological relationships by means of field trips and by the collection and identification of specimens collected in the local environment. Two lecture hours and two laboratory periods of two hours each a week.

305. ECOLOGY. (4) Prerequisite: Biology 201 or 202. The fundamental principles of the relationships of plants and animals to each other and to the environment are discussed and demonstrated by trips in the local area. Two lecture hours and two laboratory periods of two hours each a week.

306. CYTOLOGY. (4) Prerequisite: Biology 201 or 202. A study of the organization of cells stressing the morphological and chemical make-up of cellular constituents and their interaction. Two lecture hours and two laboratory periods of two hours each a week.

401. HISTOLOGY. (4) Prerequisite: Biology 202. A microscopic

study of vertebrate tissues and organs. Techniques of preparing tissues for study are also included in this course. Two lecture hours and two laboratory periods of two hours each a week.

402. EMBRYOLOGY. (4) Prerequisite: Biology 202. Studies in the gametogenesis, fertilization, early embryology and organogenesis of vertebrates. Two lecture hours and two laboratory hours each week.

410. INVESTIGATIONS IN BIOLOGY. (Two to four hours) A course designed to allow the Senior Biology major to initiate a research problem in his field of interest. All participants must have an academic standing of 3.5 in the major field.

411. SEMINAR. (1) A course required of all Biology majors, to be taken during the fall semester of the senior year. Pertinent topics in the field of Biology, and reports on original research are discussed. Students are required to act as the discussion leaders.

CHEMISTRY

Professors Burson, Chairman, Norman; Associate Professor Kuppers; Assistant Professors Crosthwaite, Gibson, Smith

A major in chemistry leading to the B.A. degree consists of 32 semester hours of chemistry among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302 and 303. Related work, which must be approved by the Chemistry Department, consists of 20 semester hours in not more than two departments. German is the recommended foreign language for the B.A. degree.

A major in chemistry leading to the B.S. degree consists of 44 semester hours of chemistry courses among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302, 303, 304, 401, 491, and 492. Related work consists of 25 semester hours of mathematics (Mathematics 141 and above) and physics. At least two years of German or two years of Russian are required for the B.S. degree.

Students planning to start a career as a chemist with the baccalaureate degree, and those who intend to prepare for graduate study in chemistry should earn the B.S. degree.

The B.A. degree can be tailored to fit individual needs of those preparing for medical and dental school, of those who are planning to do graduate work in sciences closely related to chemistry, those preparing to teach in the public schools, and those desiring a liberal education with concentration in chemistry and related natural sciences.

The following are recommended course selections for the two degrees.

B.A. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 104**	3
German 101	3	German 102	3
History 101	3	History 102	3
	16 hrs.		16 hrs

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202	3
Math 141	4	Math 142	4
German 201	3	German 202	3
Natural Science B	4	Social Science	3
	18 hrs.		17 hrs

5th Semester		*6th Semester*	
Chemistry 303	4	Chemistry 402	4
Physics 201	4	Physcis 202	4
Math 241	4	Humanities	3
German 303	3	Social Science	3
	15 hrs.	Elective	3
			17 hrs.

7th Semester		*8th Semester*	
Chemistry 301	4	Chemistry 302	4
Humanities	3	Social Science	3
Electives	9	Electives	9
	16 hrs.		16 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

B.S. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 141	4
Math 104**	3	German 102	3
German 101	3	History 101	3
	16 hrs.		17 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
Math 142	4	Math 241	4
Physics 201	4	Physics 202	4
German 201	3	German 202	3
English 201	3	English 202	3
	18 hrs.		18 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

5th Semester		*6th Semester*	
Chemistry 301	4	Chemistry 302	4
Chemistry 303	4	Chemistry 304	4
Math 242	4	History 102	3
Soc. Sci.	3	Soc. Sci.	3
Elective	3	Elective	3
	18 hrs.		17 hrs.

7th Semester		*8th Semester*	
Chemistry 401	4	Chemistry 402	4
Chemistry 403	2	Chemistry 403	2
Chemistry 491	1	Chemistry 492	1
Nat. Sci. B.	4	Social Sci.	3
Math or Physics	3 (4)	Math or Physics	3 (4)
Humanities	3	Humanities	3
	17(18) hrs.		16(17) hrs.

101. GENERAL CHEMISTRY. (4) Prerequisite or corequisite: Mathematics 101, or Mathematics 103. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

102. GENERAL CHEMISTRY. (4) Prerequisite: Chemistry 101. Continuation of Chemistry 101 including qualitative analysis. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

201. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 102. Basic theories, principles, and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Laboratory includes qualitative organic analysis. Three lecture hours and two laboratory periods of three hours each per week.

202. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 201. Continuation of Chemistry 201. Three lecture hours and two laboratory periods of three hours each per week.

203. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 102. Lecture same as Chemistry 201. Three lecture hours and one laboratory period of three hours a week.

204. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 203. Lecture same as Chemistry 202. Continuation of Chemistry 203. Three lecture hours and one laboratory period of three hours a week.

301. PHYSICAL CHEMISTRY. (4) Prerequisites: Chemistry 102, Mathematics 241, Physics 202. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of

statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours and one laboratory period of three hours per week.

302. PHYSICAL CHEMISTRY. (4) Prerequisite: Chemistry 301. Continuation of Chemistry 301. Three lecture hours and one laboratory period of three hours a week.

303. QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 102 and satisfactory work in college mathematics and physics. Introductory course in quantitative analytical chemistry, including both volumetric and gravimetric procedures. Two lecture hours and two laboratory periods of three hours each a week.

304. ADVANCED QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 301, Chemistry 303. Continuation of Chemistry 303, involving more difficult methods including instrumental methods such as spectrophotometric, electroanalytical, and chromatographic techniques. Two lecture hours and two laboratory periods of three hours each a week.

401. ADVANCED INORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 302, 304. Descriptive and theoretical inorganic chemistry, including the application of physical-chemical principles to the study of inorganic systems. Laboratory work involving inorganic preparations and analytical instrumental techniques. Three lecture hours and one laboratory period of three hours a week.

402. ADVANCED ORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 202 (or 204), 303. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis, including instrumental methods. Two lecture hours and two laboratory periods of three hours each a week.

403. INDEPENDENT STUDY AND RESEARCH. (1 to 4) Prerequisites: Chemistry 204 (or 202), 302, 304. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry, or biochemistry; introduction to research. Hours in consultation, library and laboratory to be determined.

450. QUANTUM CHEMISTRY. (3) Prerequisites: Chemistry 302 and Mathematics 372. (The latter may be taken concurrently.) The basic postulates of quantum mechanics. The solution of the Schrodinger equation for the hydrogen atom. Introduction to the concepts of molecular orbitals and valence bond treatments in interpreting bonding in more complex molecules. Three lecture hours per week.

491. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Discussion of recent developments in chemistry. Written and oral reports will be submitted.

492. CHEMISTRY SEMINAR (1) Prerequisite: Senior Standing. Continuation of Chemistry 491.

ECONOMICS AND BUSINESS ADMINISTRATION

Professor Wubben, Chairman; Assistant Professors Blachman, Higgins; Instructors Causey, Dunn, Williamson

Accounting

A major in Accounting leading to the B.S. degree consists of the following 39 semester hours of courses: Business Administration 201, 202, 311, 316, 400, 380, 371, 373, 471, 473, 475, 477, and 478.

The following fifteen hours of related work are required: Mathematics 221, 222, Economics 305, Economics 324, and three additional hours either in mathematics or economics.

Six semester hours of humanities and nine semester hours of social science are required. The course in Principles of Economics (Economics 201, 202), which is prerequisite for many advanced courses in this program, will be specified as satisfying six hours of the social science requirement.

A Representative Program for a Course of Study Leading to the B.S. Degree in Accounting

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics 102	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Mathematics 221**	3	Mathematics 222**	3
Bus. Administration 201*	3	Business Administration 202*	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 311*	3	Economics 324**	3
Business Admin. 373*	3	Business Admin. 371*	3
Foreign Language (or elect.)	3	Business Admin. 471*	3
Science	4	Science	4
	16	Humanities	3
			19

SENIOR YEAR

Economics 305**	3	Business Admin. 400*	3
Business Admin. 473*	3	Business Admin. 475*	3
Business Admin. 477*	3	Business Admin. 478*	3
Social Science	3	Free Elective	3
Humanities	3	Related work in Econ. or Math**	3
	15		15

TOTAL HOURS: 127

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement.).
**Indicates related work.

Business Administration

A major in Business Administration leading to the B.A. degree consists of the following courses: Business Administration 201, 202, 371, 315, 380, 311, 400, and 444.

The following related work is required: Mathematics 221, 222, Economics 305, 324, 316, and 480.

The course in Principles of Economics (Economics 201, 202) will satisfy six hours of the requirement of nine semester hours of social science. This course is prerequisite to many of the courses listed above.

A Representative Program for a Course of Study Leading to the B.A. Degree in Business Administration

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 371*	3	Business Admin. 311*	3
Economics 324*	3	Science	4
Foreign Lang. (or elect.)	3	Free elective	3
Science	4	Free elective	3
	16		16

SENIOR YEAR

Business Admin. 400*	3	Business Admin. 444*	3
Economics 315*	3	Economics 480*	3
Economics 305*	3	Free elective	2
Free elective	3	Free elective	3
Humanities	3	Social Science	3
	15	Humanities	3
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement), and Mathematics 221, 222 (Probability & Statistics).

Economics

A major in Economics leading to the B.A. degree consists of 24 hours of courses offered by the Department of Economics numbered 300 and above. These 24 hours must include Economics 315, 322, 323, 471, 305, and three of the following: Economics 416, 324, 480, 375, and 477.

The following 21 hours of related work are required: Mathematics 221, 222; Business Administration 201, 202, and three of the following four courses: Business Administration 311, 316, 400, 444.

The course in Principles of Economics (Economics 201, 202), which is prerequisite for many of the courses listed above, will satisfy the requirement of six of the nine semester hours of social science.

A Representative Program for a Course of Study Leading to the B.A. Degree in Economics

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 101	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Language (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Economics 322*	3	Economics 323*	3
Economics 315*	3	Economics elective*	3
Related work in Bus. Adm.*	3	Related work in Bus. Adm.*	3
Science	4	Science	4
Foreign Lang. (or elect.)	3	Social Science	3
	16		16

SENIOR YEAR

Economics 471*	3	Economics elective*	3
Economics 305*	3	Related work in Bus. Adm.*	3
Economics elective*	3	Free elective	3
Free elective	3	Free elective	3
Humanities	3	Free elective	2
	15	Humanities	3
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement) and Mathematics 221, 222 (Probability & Statistics).

BUSINESS ADMINISTRATION

201. PRINCIPLES OF ACCOUNTING. (3) Prerequisite or corequisite: Economics 201. A study of fundamental accounting principles, with emphasis on managerial uses of accounting data, and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

202. PRINCIPLES OF ACCOUNTING. (3) Prerequisite: Business Administration 201. A study of basic accounting theory; corporate financing and reporting; financial planning; and an introduction to cost accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

311. MARKETING. (3) Prerequisite: Economics 202. Prerequisite or corequisite: Business Administration 201. A consideration of the problems involved in the physical distribution of goods from the producer to the final consumer. Attention is given to the various marketing channels and institutions. In general, the course will be taught from the standpoint of the producer of the product to be marketed.

316. FINANCIAL MANAGEMENT. (3) Prerequisites: Economics 324 and Business Administration 201. Principles and problems of business financing. Particular emphasis on financial planning and control.

371. COST ACCOUNTING. (3) Prerequisite: Business Administration 202. A study of cost determination and control. Includes

procedures for job order, process and standard systems, and management uses of cost data. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

373. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration 202. A review of basic accounting principles; accounting for resources and liabilities; special problems peculiar to corporations; and analysis and interpretation of accounting reports. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

380. BUSINESS LAW. (3) Prerequisite or corequisite: Economics 202; prerequisite: Business Administration 201 or Business Administration T102. A study of the legal environment in which a business operates, topics covered include contracts, sales, negotiable instruments, agency, partnerships, and corporations.

400. PRODUCTION MANAGEMENT. (3) Prerequisites: Economics 202 and Business Administration 202. Analysis of the management function of production control, with emphasis at the *micro level.* Ample use of the case study approach will develop an understanding of production planning, control, and decisions.

444. ORGANIZATION THEORY. (3) Prerequisites: Economics 322 and Business Administration 316. An application of traditional and behavioral concepts to business organization and decision making. Primarily a study of the process of decision making in the business organization including the more modern feed back systems of group behavior.

471. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration 373. Special advanced accounting problems and reports including partnership formation and dissolution, installment sales, consignments, branch accounting, consolidated statements, statement of affairs, receiver's accounts, realization and liquidation reports, actuarial science, estates, and trusts. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

473. GOVERNMENTAL ACCOUNTING. (3) Prerequisite: Business Administration 202. Fund accounting procedures for governmental units and institutions. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

475. AUDITING. (3) Prerequisite: Business Administration 202. Auditing theory and practice with emphasis on public

auditing. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

477. INCOME TAXATION FOR INDIVIDUALS. (3) Prerequisite: Business Administration 202. A study of federal and state income tax laws applying to individuals. The preparation of individual income tax returns is stressed in laboratory problems. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

478. ADVANCED INCOME TAXATION. (3) Prerequisites: Business Administration 202 and 477. A study of federal and state income tax laws applying to partnerships, corporations, estates and trusts; and estate, gift, and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

TERMINAL PROGRAMS IN BUSINESS ADMINISTRATION

The terminal curricula are intended primarily for students who expect to complete their college program in two years or less. These programs are designed for two distinct types of students: (1) those who plan to go directly into employment, and (2) those who are studying for advanced positions with their present employer. Several of the courses taken in each program are transferable to the university parallel curriculum without a loss of semester credit hours.

Note: 1. No new students will be admitted to these programs after September 1966.
2. The programs will be terminated in 1968.

BUSINESS ADMINISTRATION AND ACCOUNTING:

An A.A. degree in the terminal program in Business Administration and Accounting consists of the following courses: English 101[1], 102, 201, and either 202, 203, or 204; History 101, 102; Economics 201, 202; Political Science 201; Business Administration T101, T102, T121, T111, 380; and eighteen hours of electives.

A Representative Course of Study for a Terminal Program in Business Administration and Accounting
Leading to the A.A. Degree

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Business Admin. T101	4	Business Admin. T102	4
Elective	6	Business Admin. T111	3
	16	Business Admin. T121	3
			16

[1] Students making a sufficiently high placement score in English are exempted from English 101.

SOPHOMORE YEAR

English 201	3	English 202 or 203 or 204	3
Economics 201	3	Economics 202	3
Political Science 201	3	Business Admin. 380	3
Elective	6	Elective	6
	15		15

GENERAL BUSINESS AND SECRETARIAL SCIENCE:

An A.A. degree in the Terminal program in General Business and Secretarial Administration consists of the following courses: English 101[1], 102; History 101, 102; Business Administration T101, T102, T111; Business Education T155, T156, T157, T158, T255, T256, T257, T258, T261, T262; and twelve hours of electives.

A Representative Course of Study for a Terminal Program in General Business and Secretarial Science Leading to the A.A. Degree

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Business Admin. T101	4	Business Admin. T102	4
Business Education T155	2	Business Education T156	2
Business Education T157	3	Business Education T157	3
	15		15

SOPHOMORE YEAR

Business Admin. T111	3	Business Education T256	2
Business Education T255	2	Business Education T258	3
Business Education T257	3	Business Education T262	3
Business Education T261	3	Electives	6
Electives	6		14
	17		

[1] Students making a sufficiently high placement score in English are exempted from English 101.

Business Administration and Accounting[1]

T101. INTRODUCTION TO ACCOUNTING. (4) Theory of debits and credits; construction of the trial balance, work sheet, income statement, and balance sheet. Problems and materials characteristic of the single proprietorship form of business organization. Payroll accounting. Introduction to the field of data processing and the rapidly increasing role it plays in modern businesses. Three lecture hours and one laboratory period of two hours a week.

[1] Credits earned in Terminal Program courses in business administration, accounting, business education, and secretarial science are not acceptable for credit toward any A.B. program.

T102. INTRODUCTION TO ACCOUNTING. (4) Prerequisite: Business Administration T101. Accounting theory and types of internal and external uses of accounting data; valuation of assets and liabilities and determination of income; analysis of financial statements. Emphasis on partnership and corporation organizations. Introduction to job order cost and cost accounting. Three lecture hours and one laboratory period of two hours a week.

T103. SALESMANSHIP. (3) Fundamental principles of wholesale and retail selling. Analysis of sales propositions to a qualified customer.

T111. BUSINESS CORRESPONDENCE. (3) Prerequisite: English 101. Fundamentals of grammar. Vocabulary building. Survey of modern business letters and reports.

T121. BUSINESS MATHEMATICS. (3) Applications of mathematics to typical accounting, financial, and other business problems, including bank discounts, trade discounts, weighted averages, merchandise markup and turnover. Application of compound interest principles to sinking fund and amortization problems. Introduction to payroll accounting computations and income tax accounting for individuals.

T201. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration T102. Review of accounting procedures and consideration of alternative practices with a more detailed study of basic concepts and their applications. Comparative statements and analytical percents and ratios; analysis of working capital; accounting pertaining to capital structure of corporations. Two lecture hours and one laboratory period of two hours a week.

T202. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration T201. Classification and analysis of liabilities; application of accounting principles to income determination and valuation; correction of profits of prior periods, statement of sources and application of funds. Two lecture hours and one laboratory period of two hours a week.

T203. INCOME TAX ACCOUNTING FOR INDIVIDUALS. (3) Prerequisite: Business Administration T101. Intensive study of federal and state income tax laws and the preparation of individual income tax returns of all types. Emphasis on preparation of tax returns in laboratory work. Two lecture hours and one laboratory period of two hours a week.

T206. INCOME TAX ACCOUNTING FOR BUSINESSES. (3) Prerequisite: Business Administration T203. Income tax laws and the preparation of returns for partnerships, corporations,

estates, trusts, and proprietorships. Emphasis on preparation of state and federal returns in laboratory work. Two lecture hours and one laboratory period of two hours a week.

T207. COST ACCOUNTING. (4) Prerequisite: Business Administration T102. Introduction to cost accounting procedure and systems. Emphasis on job order and process costs. Laboratory work consists of practice set for each. Brief study of standard cost. Three lecture hours and one laboratory period of two hours a week.

T227. PERSONNEL MANAGEMENT. (3) Job instruction training to improve the supervisor's efficiency in training personnel; supervisory techniques for the supervisor in developing his ability to lead his personnel more efficiently; planned discussion and demonstrations of tested techniques in solving problems arising from human relations; employment techniques to assist personnel manager in interviewing, testing, making job analyses, and maintaining personnel records.

Business Education and Secretarial Science[1]

T155. BEGINNING TYPEWRITING. (2) Mastery of the keyboard. Emphasis on care of machine, its operating parts, simple tabulation, speed and accuracy building. No credit given to any student with previous college or high school typewriting. Three hours per week.

T156. BEGINNING TYPEWRITING. (2) Emphasis on typing business letters, tabulation, elemental composition at typewriter, speed and accuracy building. No credit given to any student with two semesters of college typewriting or two years of high school typewriting. Three hours per week.

T157. BEGINNING SHORTHAND. (3) Shorthand theory and speed building. No credit given to any student with previous college or high school shorthand. Three lecture hours and one laboratory period of two hours per week.

T158. BEGINNING SHORTHAND. (3) Emphasis on accuracy and development of speed in taking dictation. Three lecture hours and one laboratory period of two hours per week.

T255. ADVANCED TYPEWRITING. (2) Different styles of business letters, business and accounting reports, tabulated material, legal papers, and effective display of typed material. Three hours per week.

[1] Credits earned in Terminal Program courses in business administration, accounting, business education, and secretarial science are not acceptable for credit toward any A.B. program.

T256. ADVANCED TYPEWRITING. (2) Prerequisite: Business Education T255. Simulates office typing by use of practice set. Emphasis on accuracy, typewriter composition, details in making carbon copies, and format in applying for a position in business. Three hours per week.

T257. ADVANCED DICTATION. (3) Dictation and transcription with a thorough review of shorthand theory. Development of accuracy, speed, neatness, and comprehension. Three lecture hours and one laboratory period of two hours per week.

T258. ADVANCED DICTATION. (3) Prerequisite: Business Education T257. Continuation of the advanced skills in shorthand dictation. Intensive drills in production of mailable transcripts. Three lecture hours and one laboratory period of two hours per week.

T261. OFFICE MACHINES. (3) Prerequisite: Business Education 155 or equivalent. Emphasis on developmental skills in the use of at least four add listing machines, two calculators; accounting, posting, and photocopying machines. Experience gained on duplicating and other machines.

T262. OFFICE PRACTICE. (3) Prerequisites: Business Education 111, 156, 158, and 261. Office methods and procedures. Development of those characteristics and personality traits desirable and essential in the business office.

ECONOMICS

201. PRINCIPLES OF ECONOMICS. (3) The first semester of a one-year introductory course in Economics. Topics considered include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy.

202. PRINCIPLES OF ECONOMICS. (3) Prerequisite: Economics 201. The second semester of a one-year introductory course in economics. Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economics concentration and of agriculture, the theory of income distribution, international economic relationships, and comparative economic systems.

305. INDUSTRIAL RELATIONS. (3) Prerequisite: Economics 202. Systematic analysis of the sociological, economic, and political forces affecting and affected by the work environment. Special emphasis on market structure, the small group, the legal environment, and union structure.

315. MONEY AND BANKING. (3) Prerequisites: Economics 202 and Business Administration 201. The characteristics and functions of money in the modern economy. The operation of our banking system; monetary theory and policy.

322. PRICE THEORY AND INDUSTRIAL ORGANIZATION. (3) Prerequisite: Economics 202. A study of the manner in which prices are determined in various types of markets—competitive, monopolistic, oligopolistic, and monopolistically competitive—and of the characteristics of each. Consideration is given to the economics of the firm, and to the use of economic theory in making business decisions.

323. MACRO-ECONOMIC THEORY. (3) Prerequisite: Economics 322. An analysis of economic aggregates, primarily of income determination. Special emphasis on the development and understanding of current macro-economic models and sector analysis.

324. MANAGERIAL ECONOMICS. (3) Prerequsites: Economics 202 and Business Administration 202. A consideration of economic problems of particular importance to business firms, with a view to using tools of economic analysis in managerial decision making.

375. COMPARATIVE ECONOMIC SYSTEMS. (3) Prerequisite: Economics 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism, and communism.

416. PUBLIC FINANCE. (3) Prerequisite: Economics 315. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

471. INTERNATIONAL ECONOMICS. (3) Prerequisites: Economics 323 and Economics 315. The application of modern developments in price theory, employment theory, and monetary theory to international equilibrium, and world liquidity are also considered.

477. HISTORY OF ECONOMIC THOUGHT. (3) Prerequisite: Economics 323. The development of the great economic ideas of value, distribution, employment, etc., with special emphasis on the foundations of classic economic thought.

480. GOVERNMENT AND BUSINESS. (3) Prerequisite: Economics 202. A historical development of government regulation of business, utilizing the case study approach to develop an understanding of current philosophies and problems in this area.

EDUCATION

Associate Professor Vairo, Chairman; Assistant Professors Hackney, O'Neal

The Department of Education, within the framework of the liberal arts and science curricula, prepares elementary and secondary school teachers. Teacher education is conceived as a cooperative enterprise of the entire faculty. The preparation of teachers is seen as one of the important functions of a University. The program's requirements are in addition to the requirements which must be met in a major field of concentration and the general requirements for the Bachelor's degree. Courses offered in the teacher education program may be taken for undergraduate credit and may also be applied toward a teaching certificate or certificate renewal.

In meeting the general requirements for the Bachelor's degree, students who plan to teach should complete (1) one course in each of two of the following areas: anthropology, economics, geography, political science, and sociology; (2) one course in American literature; and (3) Health Education 101 and Physical Education 101.

Admission

Qualified students are admitted to the program in the second term of the sophomore year. Candidates must have earned at least a 2.0 grade-point average on all courses attempted and have completed Psychology 201. Applications should be filed with the Chairman of the Department of Education during the preceding term. Those students accepted in the program should consult a representative of the Department of Education for long-range planning of their programs and during the registration period. The progress of all students in the professional sequence is reviewed each semester.

Special Students in Teacher Education

The status "special student" in Teacher Education is applied to (1) applicants who hold a bachelor's degree and are working toward a teaching certificate or certificate renewal, (2) visiting students who take courses in the teacher education program with the approval of their resident institutions.

Special students must meet the standards set by the University for admission as well as the requirements of the Department of Education, which include above average scholastic ability, sound mental and physical health, and good speech.

Students should consult with the Chairman of the Department of Education for further details.

See also page 18.

Student Teaching

For admission to Education 450 and 451 (Student Teaching) candidates must have above average scholastic ability, sound mental and physical health, good speech, and the approval of the Department of Education. The quality of scholarship in the teaching field or area of each candidate shall be at a level above that minimally required for graduation. Preparation for teaching consists of more than the satisfactory completion of a series of courses.

Students must complete all course requirements for a major and the general college requirements prior to the semester of student teaching. They must also attend a general conference preceding the semester in which they plan to do their student teaching. The date of the conference will be announced in Education classes and posted on the Teacher Education bulletin board (outside room B113).

National Teacher Examination

A candidate for an elementary or secondary teaching certificate in North Carolina must file evidence that the National Teacher Examination has been taken before a certificate may be issued. Both common and optional examinations (optional to be in one's major certificate field, if available) must be taken by the applicant. Students should consult with the Chairman of the Department of Education for further details.

Teacher Placement

The Placement Office in the Division of Student Affairs in cooperation with the Department of Education provides professional teacher placement services for qualified graduates. All students in the Education sequence are urged to complete their credentials since it is common practice for school administrators to contact the University for prospective candidates.

Professional Education Sequence

Elementary

Sophomore or Junior Year	Semester Hours
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Junior Year	
Education 303 Elementary Education I	3
Psychology 301 Child Psychology	3

*Senior Year—Block Schedule**

Education 304 Philosophy of Education 3
Education 401 Elementary Education II 3
(Second semester of the senior year—first eight weeks)
Education 450 Student Teaching: Elementary 6
(Second semester of the senior year—second eight weeks)
Total—24

* English 304 is included in the block schedule during the first eight weeks.

Secondary

Sophomore or Junior Year

Education 201 Introduction to Education 3
Psychology 202 Educational Psychology 3

Senior Year—Block Schedule

Education 304 Philosophy of Education 3
Education 402 Methods of Teaching in Secondary School 3
Psychology 302 Adolescent Psychology 3
(Second semester of the senior year—first eight weeks)
Education 451 Student Teaching: Secondary 6
(Second semester of the senior year—second eight weeks)
Total—21

Course Requirements

Candidates who plan to teach in elementary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in one of the academic fields (a minimum of 27 semester hours).

(3) A sequence in Elementary Education: Education 201, 303, 304, 401 and 450; Psychology 202 and 301. Twenty-one semester hours of these courses may be counted as related work.

(4) Subject-matter requirements for teacher certification.

Course	Semester Hours
Art 201, 302	5
English 303, 304	5
Geography 101, 102	7
Health Education 409	2
History 201, 202	6
Mathematics 403	3
Music 205, 307	4
Physical Education 409	2
Political Science 200	3

Candidates who plan to teach in secondary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in the academic field in which they plan to teach.

(3) A sequence in Secondary Education: Education 201, 304, 402 and 451; Psychology 202 and 302.

(4) Related work approved by the major department.

(5) All required courses for certification in the teaching field.

	Semester Hours
English	36
Language (Grammar, composition, rhetoric, history and analysis of the English Language, etc.)	12
Literature (English and American Literature)	12
Language and Literature Skills (Reading, interpretation of literature, oral and written exposition, the library, and journalistic writing)	6
Electives from the above areas	6
Mathematics	30
Calculus and Analytic Geometry	9
Algebra	6
Geometry	3
Electives in Mathematics	12
The algebra shall consist of one course in modern abstract algebra and one in linear algebra.	
Modern Foreign Language	30
Grammar, Composition, and Phonetics	9
Literature	9
Language Skills (Understanding, speaking, reading, and writing)	6
Literature, History, and Civilization of country being studied	6
(The 30-hour requirement in a language assumes that one has had two or more high school units in that language when entering college.)	

Science 48

(1) Common Foundation 24

Mathematics 6

Six semester hours each from three of the following: 18

Biology

Chemistry

Physics

Earth Science

(2) A concentration in one area 20

Biology

Chemistry

Physics

Earth Science

(3) Electives 4

Certification in the individual science areas should give depth sufficient to assure reasonable competence as a teacher in the subject of concentration. A program for certification in a particular area (Biology, Chemistry, Physics, or Earth Science) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

Social Science 42

(1) History—American and World 21

(2) From three or more of the following 21

(There should be about equal emphasis on all areas chosen)

Anthropology

Economics

Geography

Political Science

Sociology

A program for certification in individual areas (Anthropology, Economics, Geography, History, Political Science, or Sociology) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

EDUCATION

201. INTRODUCTION TO EDUCATION. (3) An introductory course to acquaint students with the teaching profession. Con-

sidered are the role of the teacher, the clientele of the school, and the community. Emphasis placed on the historical and sociological orientation of the school in society.

303. ELEMENTARY EDUCATION I: ORGANIZATION AND CURRICULUM. (3) Prerequisites: Education 201, Psychology 202. Major consideration is given to the organization, administration, and curriculum of the elementary school. Emphasis placed on the role of the elementary school teacher in the total education program.

304. PHILOSOPHY OF EDUCATION. (3) Prerequisites: Education 201, Psychology 202. A study of the educational philosophies of the contemporary period and the basic assumptions upon which statements about modern education rest. Extensive readings in text and source materials.

401. ELEMENTARY EDUCATION II: METHODS AND MATERIALS. (3) Prerequisite: Education 303. Major consideration is given to the methods and materials used in teaching at the various grade levels in the elementary school. Emphasis placed on the preparation of lesson plans and units.

402. METHODS OF TEACHING IN SECONDARY SCHOOL. (3) Prerequisites: Education 201, Psychology 202. Aims, methods, and materials of teaching a subject at the secondary level. Also considered are the following: organization of the curriculum, pupil promotional patterns, and classroom management.

402-a English
402-b Foreign Languages
402-c Mathematics
402-d Sciences
402-e Social Sciences

403. PRINCIPLES OF GUIDANCE. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to increase the teacher's knowledge and understanding of the meaning, scope, and principles of guidance in the school setting. A survey course planned to give perspective for future work in guidance.

404. SEMINAR IN EDUCATIONAL RESEARCH. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to assist teachers to conduct and evaluate research studies. Basic research techniques will be examined. Each student will develop a limited research project.

405. SEMINAR FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite: employment as an elementary school teacher or special permission of the Department of Education. Contem-

porary problems and issues confronting teachers in their actual school experience. The activities of the course will vary with the needs of the students.

406. SEMINAR FOR SECONDARY SCHOOL TEACHERS. (2) Prerequisite: employment as a secondary school teacher or special permission of the academic department. Study in subject matter content related to the student's teaching field.

406-a English
406-b Foreign Languages
406-c Mathematics
406-d Sciences
406-e Social Sciences

450. STUDENT TEACHING: ELEMENTARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in an elementary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

451. STUDENT TEACHING: SECONDARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in a secondary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

ENGINEERING

Professor Barnette, Chairman; Associate Professors Stoughton, Wayne; Assistant Professors Kim and Norem

The engineering department provides an undergraduate professional education in the fields of Electrical Engineering and Mechanical Engineering. The curricula are designed to serve both the potential graduate student who will pursue a career in research or teaching, and the student who will pursue a career as a professional engineer in industry, business, or consulting. Both of these objectives require a substantial curriculum content in the humanities, the physical sciences, the engineering sciences, mathematics, and engineering design.

The engineering curricula prescribed by the faculty of the University of North Carolina at Charlotte give thorough attention to all of these essential areas of content. In order to accomplish this, a total of 139 semester hours of work is required for graduation. The curricula which are shown in detail on the following pages, are outlined as four year programs. Students who enter the University with strong college board scores, and qualify through the entrance examination in mathematics to

enroll in Mathematics 141, can expect to schedule their work on an eight semester basis, as shown. Students who are required to enroll in Mathematics 103 and 104, on a basis of the entrance test in mathematics, will not take the courses exactly as listed, unless they begin their program in the summer and complete these preliminary mathematics requirements in advance of their first semester of regular study. Some students may need to take lighter loads than those which are shown, and to attend school one or more summer sessions, or an extra semester, to complete requirements. This is optional with the student, and each one is encouraged to take a load which is optimum for his individual case.

THE ELECTRICAL ENGINEERING CURRICULUM

The curriculum in Electrical Engineering is based upon a core of sequence courses in four branches of electrical science, namely: circuit theory, electric and magnetic field theory, electronics, and electro-mechanical devices. These sequences occur in the sophomore and junior years, except for the last named, which is in the senior year. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, mathematics courses, and supporting physical and engineering science courses parallel the four electrical science stems.

The electrical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology. At the same time, the student has an opportunity to develop a degree of technical specialization by means of these electives.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected to form a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Electrical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Economics 201*	3
	15		17

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EE 211 Networks	3	EE 212 Networks	3
EM 291 Mechanics	3	EE 252 Laboratory	1
E 111 Graphics	2	EM 216 Materials	3
English 205	3	Elective (Hum. or S.S.)	3
	19		18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
EE 311 Transients	3	EE 312 A.C. Circuits	3
EE 321 E. & M. Fields	3	EE 332 Electronics	3
EE 351 Laboratory	1	EE 352 Laboratory	1
ME 311 Thermodynamics	3	ME 392 Heat Power	3
Physics 311	3	Elective (Hum. or S.S.)	3
Elective (Hum. or S.S.)	3		16
	19		

SENIOR YEAR

EE 421 E. & M. Fields	3	EE 442 Machinery	3
EE 431 Electronics	3	EE 452 Laboratory	1
EE 441 Electro. Devices	3	EE Electives	6
EE 451 Laboratory	1	Electives (Tech. or Hum.)	6
EE Elective	3		16
Elec. (Tech. or Hum.)	3		
	16		

Note: The 9 semester hours of Technical or Humanities Electives may be used:

1) To develop a particular area of interest within the humanities.
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology, etc.;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

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* Another 200 level course in economics may be substituted with the consent of both departments.

ELECTRICAL ENGINEERING COURSE DESCRIPTIONS

EE 211. RESISTIVE NETWORKS I. (3) Prerequisite: Math 141. Introduction to linear oriented graphs. Kirchoff's voltage and current equations. Definition and properties of important subgraphs: seg, circuit, tree, cotree, etc. Formation of seg and circuit matrices; the fundamental seg and circuit matrices. Definition and criteria for forming the seg and circuit basis

matrices. Characterization of the network elements. Combination of the seg, circuit, and terminal equations into the primary system. Formal derivation of the mesh, node, and branch systems of equations. Formulation of the secondary systems of equations by matrix techniques. Power and energy functions. Effective and average values of time functions. Three hours.

EE 212. RESISTIVE NETWORKS II. (3) Prerequisite: EE 211. Secondary systems of equations directly from the graph (mesh, branch, and node). Driving point functions. Network theorems: superposition, reciprocity, Thevenin's and Norton's equivalents, etc., Delta and wye equivalents of three terminal R-graphs. The v(t)-i(t) interrelations for four terminal R-graphs: open, and short circuit, cascade, and hybrid parameters. Balanced and symmetric networks: tee, pi, and lattice equivalents. Bartlett's bisection theorem. Image and scattering parameters, cascaded networks, insertion function, and attenuators. N-terminal R-graphs. Three hours.

EE 252. LABORATORY I. (1) Corequisite EE 212. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to illustrate the theory introduced in the paralleling or preceding courses. The laboratory sequence will be measurements-oriented and will develop increasing sophistication of experimental technique. Three hours.

EE 311. TRANSIENTS. (3) Prerequisite: EE 212. The study of the Laplace transform theorems, concepts, properties and techniques, and its application to networks. The formulation of network equations and the investigation of the transient and steady state solutions of these equations for networks with step, pulse, periodic, and sinusoidal driving functions. Introduction to complex variables, residues, and partial fractions. Initial conditions, switching and transition transients. The vector transform as an introduction to the sinusoidal steady state. Three hours.

EE 312. ALTERNATING CIRCUIT THEORY. (3) Prerequisite: EE 311. Analysis and investigation of sinusoidal circuits: series, parallel, network theorems, matching, coupled circuits, etc., mesh, branch and node equations of RLCM multimesh networks in vector notation, both through matrix formulation and direct formulation from the graph. The Fourier series and its application to networks. Two and four terminal network equivalences, the methods for and the restrictions on their interconnections. Filter theory: conventional and image parameter methods. Three hours.

EE 321. INTRODUCTION TO ELECTROMAGNETIC FIELDS. (3) Prerequisite: EE 212. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electro-

statics: potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations. Three hours.

EE 332. FUNDAMENTALS OF ELECTRONICS AND SEMICONDUCTORS. (3) Prerequisite: EE 311. A study of fundamental concepts and principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices: thyratrons, ignitrons, etc. Photoelectric devices. Amplifier and oscillator characteristics and their configurations. Three hours.

EE 351. LABORATORY II. (1) Prerequisites: EE 252, EE 311, and 321 parallel. A continuation of EE 252, involving experiments in the areas of circuit theory and fields. Three hours.

EE 352. LABORATORY III. (1) Prerequisites EE 312, and EE 332 parallel. A continuation of EE 351 involving experiments in the areas of circuit theory, electronics, and semiconductors. Three hours.

EE 391. PRINCIPLES OF ELECTRICAL ENGINEERING I. (4) Prerequisites: Physics 202, Mathematics 242. A study of the fundamental principles which underlie the analysis of electric, magnetic, and electronic devices. A study of the basic methods for analyzing electric and magnetic circuits for d.c., a.c. and transient modes of operation. Laboratory experiments related to these studies.

EE 392. PRINCIPLES OF ELECTRICAL ENGINEERING II. (4) Prerequisite: EE 391. A study of the principles of operation of electric, electronic and electromagnetic instruments, devices, and machines. Laboratory experiments related to these studies.

EE 400. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. (Variable credit 1-4 hours) Prerequisite: Senior standing in Electrical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional electrical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EE 411. NETWORK SYNTHESIS. (3) Prerequisite: EE 312. Positive real functions, their properties and methods of testing. Driving point synthesis of LC, RC, and RL networks into Foster and Cauer networks. One terminal pair RLC network synthesis using the Brune and Bott-Duffin methods. Realization of two terminal pair networks by ladders, Cauer networks, lattices and Darlington networks. Approximation methods. Three hours.

EE 412. NON-LINEAR ANALYSIS. (3) Prerequisite: EE 312. Solutions of non-linear problems using numerical methods, graphical methods, phase plane plots, analysis of singular points, and analytical techniques. The use of analogs and duals for writing equations. The use of the analog computer and digital computer. Three hours.

EE 421. ELECTROMAGNETIC WAVES. (3) Prerequisite: EE 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial lines and waveguides. Three hours.

EE 422. RADIATION AND MICROWAVE THEORY. (3) Prerequisite: EE 421. A study of radiation into free space; antenna theory. Microwave theory: components and junctions, methods of feeding, matching, terminations and generation. Microwave amplifiers and oscillators. Introduction to Laser theory. Three hours.

EE 431. ELECTRONICS. (3) Prerequisite: EE 332. A study of electronic and semiconductor devices: transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized transistor oscillator analysis. Three hours.

EE 432. COMPUTER ELECTRONICS. (3) Prerequisite: EE 431. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits. The introduction to microwave electronics, principles of electron devices including magnetrons, klystrons, traveling wave tubes and particle accelerators. Three hours.

EE 434. SOLID STATE ELECTRONICS. (3) Prerequisite: Physics 311. Band structure of solids. Electric analog for an array of atoms. Electron transport mechanisms in conduction, diffusion, tunneling. Electronic models of varactors, tunnel diodes, and solid state microwave devices.

EE 441. ELECTROMAGNETIC DEVICES. (3) Prerequisites: EE 312, EE 321. Magnetic circuits. Transformer princi-

ples, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns. Three hours.

EE 442. ELECTRIC MACHINERY. (3) Prerequisite: EE 441. Direct-current machines, induction machines. Machines in control systems. Synchronous machines. Fractional horsepower motors. Three hours.

EE 446. ELECTRIC POWER SYSTEM ANALYSIS. (3) Prerequisites: EE 312, EE 321. Transmission lines: constants, circuit representations, equations, circle diagrams. System representations, network equations and solutions. Load flow studies, economic operation, fault studies, stability studies. Three hours.

EE 451. LABORATORY IV. (1) Prerequisites: EE 312, EE 332, EE 352. A continuation of EE 352 involving experiments in the areas of circuit theory, electronics, and electromagnetics. Three hours.

EE 452. LABORATORY V. (1) Prerequisite: EE 451. A continuation of EE 451 involving experiments in electromagnetics, devices, and machines. Three hours.

EE 472. AUTOMATIC CONTROL SYSTEMS. (3) Prerequisite: EE 431. A basic study of closed-loop systems utilizing frequency response analysis. Design techniques are developed for desired performance criteria. Electrical, mechanical, and hydraulic systems are considered. Analog computer use in system studies. Three hours.

THE MECHANICAL ENGINEERING CURRICULUM

The curriculum in Mechanical Engineering is based upon sequences of engineering science courses in heat power, engineering mechanics, and mechanical design. These occur principally in the sophomore and junior years. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, physical science courses, and electrical science courses supplement the mechanical engineering science and design stems through the junior year.

The mechanical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected from a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Mechanical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Economics 201**	3
	15		17

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EM 211 Mechanics I	3	EM 212 Mechanics II	3
ME 261 Engin. Materials	3	EM 214 Mechanics of Mat.	3
E 111 Graphics	2	E 112 Graphics	1
English 201 or 205	3	Elective (Hum. or S.S.)	3
	19		18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
ME 311 Thermodynamics I	3	EM 312 Fluid Mechanics	3
ME 321 Theory of Machines	3	ME 312 Thermodynamics II	3
ME 351 Laboratory I	1	ME 352 Laboratory II	1
EE 391 Prin. of EE I	4	EE 392 Prin. of EE. II	4
Elective (Hum. or S.S.)	3	Elective (Hum. or S.S.)	3
	17		17

SENIOR YEAR

ME 411 Heat and Mass Trans.	3	ME 422 Design II	3
ME 421 Design I	3	ME 452 Laboratory IV	1
ME 451 ME Laboratory III	1	ME Electives*	7
ME Elective*	3	Elective (Tech. or Hum.)	6
Physics 311	3		17
Elect. (Tech. or Hum.)	3		
	16		

* Two of the ME Electives are to be chosen from the design area and one from the heat power area, or vice versa.

** Another 200 level course in economics may be substituted with the consent of both departments.

Note: The 9 semester hours of Technical and Humanities Electives may be used:

1) To develop a particular area of interest within the humanities;
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

ME 261. ENGINEERING MATERIALS. (3) Prerequisite: Sophomore standing or permission of the department. A study of the engineering design properties of materials. The relation of composition, structure, and process treatment of materials to these properties. A survey of the common metallic and nonmetallic materials with emphasis upon engineering applications.

ME 311. THERMODYNAMICS I. (3) Prerequisites: Phys. 202, Math 242. First and second law of thermodynamics. Work and heat. Entropy and Clausius inequality. Ideal and real gases. Nonreactive mixtures of gases. Availability and irreversibility. Vapor and gas power cycles.

ME 312. THERMODYNAMICS II. (3) Prerequisite: ME 311. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to statistical thermodynamics.

ME 321. THEORY OF MACHINES. (3) Prerequisite: EM 212. Application of dynamics to mechanical systems. Static-force analysis. Dynamic-force analysis of plane motion and space mechanisms.

ME 351. ME LAB I. (1) Corequisites: ME 311, EM 212, EM 232. Theory and principles of instrumentation. Measurement of thermodynamic properties, flow properties, and strain. Preparation of Engineering report. No lecture hours. One laboratory period of three hours a week.

ME 352. ME LAB II. (1) Prerequisite: ME 351. Corequisites: ME 312 and EM 312. Continuation of ME 351. Analysis of simple systems. No lecture hours. One laboratory period of three hours a week.

ME 392. THERMODYNAMICS. (3) Prerequisite: ME 311. A continuation of ME 311 for non-Mechanical Engineering students. Thermodynamics of fluid flow, heat transfer.

ME 400. SPECIAL TOPICS IN MECHANICAL ENGINEERING. (Variable credit 1-4) Prerequisite: Senior standing in Mechanical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional mechanical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ME 411. HEAT AND MASS TRANSFER. (3) Prerequisites: EM 312, Math 372. A study of the fundamental laws of heat transfer by conduction, convection and radiation.

ME 412. GAS DYNAMICS. (3) Prerequisites: ME 311, EM 312. Compressible flow equations, isentropic flow, normal shock waves. Fanno and Rayleigh line flows.

ME 413. EXPERIMENTAL STRESS ANALYSIS. (3) Prerequisite: EM 214. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on electrical strain gages and instrumentation; brittle coatings and photoelasticity.

ME 414. REFRIGERATION. (3) Prerequisite: ME 311. Vapor compression, absorption and low temperature refrigeration cycles and systems.

ME 415. ENERGY CONVERSION I. (3) Prerequisites: ME 312, EM 312, ME 411. Application of the basic concepts of thermodynamics, heat transfer and fluid flow to power plant problems.

ME 416. ENERGY CONVERSION II. (3) Prerequisite: ME 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, therminoic converters, solar and fuel cells.

ME 421. DESIGN I. (3) Prerequisite: ME 322. Senior standing. Technical application of the basic principles of the mechanical sciences to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

ME 422. DESIGN II. (3) Prerequisite: ME 421. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

ME 424. MECHANICAL VIBRATIONS. (3) Prerequisites: EM 212, Math 371. Study of vibratory motion, including one or more degrees of freedom, with and without damping.

ME 451. ME LAB III. (1) Prerequisite: ME 352 and Senior standing. The selection of appropriate instrumentation and the experimental analysis of a predetermined small scale engineering system. No lecture hours. One laboratory period of three hours a week.

ME 452. ME LAB IV. (1) Prerequisite: ME 451. Continuation of ME 451.

ME 472. AUTOMATIC CONTROLS. (3) Prerequisite: Senior standing. Closed-loop control systems. Application of transfer function analysis.

ENGINEERING ORIENTATION AND GRAPHICS

E 100. INTRODUCTION TO ENGINEERING. (1) Survey of the professional fields in engineering, the work of the engineer, requirements in training and character, professional ethics. A preview of opportunities for careers in engineering.

E 111. ENGINEERING GRAPHICS. (2) Major areas in this course include: instrument practice, geometric construction, orthographic projection, sections, auxiliary views, pictorial drawing, free hand sketching and dimensioning, curves, charts, graphs, graphical solution of problems. Two laboratory periods of three hours each a week.

E 112. ENGINEERING GRAPHICS. (1) Prerequisite: Engineering 111. True length, true slope and line as a point, edge view and true size of a plane, shortest distance between lines, a line piercing a plane, intersection of planes, dihedral angle, shortest distances to a plane, angle between a line and a plane, revolution, development of surfaces, intersection of solids, and other miscellaneous problems. One laboratory period of three hours each week.

ENGINEERING MECHANICS AND ENGINEERING MATERIALS

EM 211. MECHANICS I. (3) Corequisites: Math 241, Physics 201. Force, moment, and couples. Resultant and equilibrium of a force system. Centroids. Moments of inertia. Principle of virtual work. Elements of kinematics.

EM 212. MECHANICS II. (3) Prerequisite: EM 211, corequisite: Math 242. Motion of particles and rigid bodies. Relation between force, mass, and acceleration. Work and energy. Impulse and momentum. Conservation of linear and angular momentum.

EM 214. MECHANICS OF MATERIALS. (3) Prerequisite: EM 211. Fundamentals of stress and strain. Shear and moment diagrams. Torsion. Stresses in beams. Beam deflections. Statically indeterminate beams. Columns.

EM 216. PHYSICAL PROPERTIES OF MATERIALS. (3) Prerequisite: Physics 201. Principles of atomic and crystal structure and chemical bonding. Solid solutions, diffusion and alloying theory. The nature of electrical, magnetic and other physical properties of conductors, semiconductors and insulators. The dependence of these properties upon structure and composition. The classification of electrical materials on the basis of structure, applications, and manufacturing technology.

EM 291. MECHANICS. (3) Corequisites: Math 241, Physics

201. A combined course in statics and dynamics for non-mechanical Engineering students.

EM 312. FLUID MECHANICS. (3) Prerequisites: ME 311, Math 242. Properties of fluids, fluid statics, derivation and application of equations for conservation of mass, energy, linear momentum and angular momentum. Dimensional analysis and dynamic similitude. Viscous effects. Ideal fluid flow.

EM 461. PHYSICAL METALLURGY I. (3) Prerequisites: ME 261 or EM 216, ME 311. Types and classifications of materials. Atomic and crystal structure. Physical properties. Phase diagrams, alloy theory, kinetics of metallurgical processes, and phase transformations.

EM 462. PHYSICAL METALLURGY II. (3) Prerequisite: EM 461. Deformation and fracture theory. Mechanical properties, strengthening concepts, heat treating and property control. Design, fabrication, and application considerations.

CIVIL ENGINEERING

CE 211. SURVEYING I. (3) Prerequisite: Mathematics 141. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; construction surveys; earthwork computations; route surveys and design; simple, compound, parabolic, and spiral curves; chaining equations. One lecture hour, two problem solving hours, and one laboratory period of three hours a week.

CE 212. SURVEYING II. (3) Prerequisite: Civil Engineering 211. Continuation of Civil Engineering 211. One lecture hour, two problem solving hours and one laboratory period of three hours a week.

Review Class for North Carolina Engineering Registration Examination

The forty-two hours of work in this course include a review of the fundamentals of engineering.

ENGLISH

Professors Wallace, Chairman, Denny (Emeritus); Associate Professors Fore, Godsey, McCall, Moose; Assistant Professors Ellis, Stovall; Instructors Bush, Draper, Foster, Fredrickson, Fuhrman, Shapiro, Stewart, Watson

A major in English leading to the B.A. degree (except for students in the elementary teachers certification program) consists of 30 hours of courses above English 102. Required courses are

201, 202 (6); Shakespeare (3); one English and one American period course (6); one upper division course in language or composition (3); the Senior Colloquium (3); and 9 additional hours within the department. Majors in English must take 3 hours in the history of England. Related work consists of 15 semester hours.

A major in English for students in the elementary teachers certification program consists of 24 hours of English beyond English 102, including English 201, 202 (6); Shakespeare (3); English Grammar (3); one English and one American period course (6); the Senior Colloquium (3); and 3 additional hours within the department. Majors in the elementary certification program must take 3 hours in the history of England. Related work consists of 15 hours.

101. ENGLISH COMPOSITION. (3) Intensive practice in theme writing, especially exposition, and an introduction to scientific study of the language. Brief review of grammar.

102. ENGLISH COMPOSITION. (3) Prerequisite: English 101 or advanced placement. Critical writing, collateral reading, and introduction to literary study.

201. ENGLISH LITERATURE. (3) Prerequisite: English 102. Intensive study of the masterpieces of British literature in chronological sequence before 1800. Not open to students with credit for English 205.

202. ENGLISH LITERATURE. (3) Prerequisite: English 201 or 205. British literary masterpieces since 1800.

203. MASTERPIECES OF MODERN FICTION. (3) Prerequisite: English 201 or 205. Readings in selected novels and short stories written since 1850. Not open to majors.

204. MAJOR AMERICAN WRITERS. (3) Prerequisite: English 201. Extensive readings in six to eight authors. Recommended for non-English majors who are working for teachers certificates. Not open to majors.

205. READINGS IN WESTERN LITERATURE. (3) Prerequisite: English 102. Ancient, British, and American writings, emphasizing basic themes and literary forms. Not open to students with credit for English 201.

NOTE: Prerequisite for 300 and 400 level courses: six semester hours of English on the 200 level, unless otherwise specified.

301. MASTERPIECES OF EUROPEAN LITERATURE. (3) Reading of complete Greek and Latin works in translation: epic, drama, history, oratory, and lyric poetry.

302. MASTERPIECES OF EUROPEAN LITERATURE. (3) Readings in Dante, Erasmus, Montaigne, Moliere, Dostoevsky, Tolstoy, and others.

303. CHILDREN'S LITERATURE. (2) Critical study of representative reading materials and approaches to literature appropriate for elementary school children. Does not count toward an English major.

304. READING AND THE LANGUAGE ARTS. (3) Emphasis on oral and written communication, with attention also to the teaching of reading; appraisal of current programs and methods. Does not count toward an English major.

305. ADVANCED COMPOSITION. (3) The writing of essays, criticisms, various forms of exposition, and short narratives.

311. CHAUCER. (3) *The Canterbury Tales, Troilus and Criseyde,* and selected minor works.

312. SHAKESPEARE. (3) Twelve of his major plays from the comedies, tragedies, and histories.

313. MILTON. (3) The major poems and selections from the minor works.

321. THE EARLIER SEVENTEENTH CENTURY. (3) The major writers from the beginning of the century through Milton and Bunyan.

323. ENGLISH LITERATURE, 1660-1785. (3) Poetry and prose from Dryden through Johnson; collateral readings in drama and the novel.

325. THE ROMANTIC ERA, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge, and other major poets.

326. THE VICTORIAN ERA, 1832-1900. (3) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, and Newman.

331. THE ENGLISH LANGUAGE. (3) Origins and development of the English language and its present usage.

332. ENGLISH GRAMMAR. (3) English grammar with particular emphasis on modern usage; the relations of grammar and composition.

341. AMERICAN LITERATURE, 1820-1890. (3) The chief writers and literary movements from Irving through Whitman.

342. AMERICAN LITERATURE SINCE 1890. (3) The chief writers and movements from Howells to the present.

343. THE AMERICAN NOVEL OF THE NINETEENTH CENTURY. (3) Major novelists and traditions before Henry James.

401. LITERARY CRITICISM. (3) Prerequisite: fifteen hours of English. The major schools and individual critics; readings in the history of criticism and composition of critical papers.

413. ENGLISH POETRY AND PROSE OF THE SIXTEENTH CENTURY. (3) The major works, excluding drama, More through Spenser, with attention to the development of the lyric.

421. THE ENGLISH NOVEL BEFORE SCOTT. (3) Major writers and traditions, Defoe through Jane Austen.

422. THE ENGLISH NOVEL FROM SCOTT THROUGH THE VICTORIANS. (3) Major writers and traditions through Hardy.

423. THE MODERN NOVEL. (3) Eight representative British and American novels showing the philosophies and techniques affecting English and American fiction, from Hardy to the present.

431. ENGLISH DRAMA BEFORE 1642. (3) Representative plays with emphasis on the chief Elizabethan, Jacobean, and Caroline dramatists from Lyly to Ford, excluding Shakespeare.

441. COLONIAL AND EARLY AMERICAN LITERATURE. (3) American literature from Colonial times through Washington Irving.

450. MODERN POETRY. (3) Chief British and American poets of this century.

451. MODERN DRAMA. (3) Representative British and American plays from Shaw to the present.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental Chairman. Lectures and student reports chronologically arranged.

FOREIGN LANGUAGES

Professor Macy, Chairman; Associate Professors Hoyle, Slechta; Assistant Professors Gabriel, Littlejohn, Lopez, Saman; Instructors Bevier, Brooks, Sabates, Sepianu

Laboratory

All foreign language courses at the 100 and 200 level, as well as those numbered 301 and 302, meet for three lecture hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

See pages 43-45 for general foreign language requirements for degree candidates.

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Science[1]	4	Science	4
Foreign Language[2]	3	Foreign Language	3
	16		16

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 202 (203)	3
Social Science	3	Social Science	3
Science	4	Science	4
Elective	3	Elective	3
Foreign Language	3	Foreign Language	3
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language	3	Foreign Language	3
Foreign Language	3	Foreign Language	3
Elective	3	Elective	6
Elective	3	Related Work	3
Related Work[3]	3	Related Work	3
	15		18

SENIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 4xx	3	Foreign Language 4xx	3
Foreign Language 4xx	3	Foreign Language 492	3
Elective	3	Elective	3
Related work	3	Elective	3
Related Work	3	Related Work	3
	15		15

Total Hours: 127

[1] Total required: 16 hours; at least 4 hours from each group:
Group A: Chemistry, Physics, Geology, Geography 101;
Group B: Biology, Psychology 201.

[2] If student presents no high school language for admission, the sequence of his Foreign Language courses would be: 101, 102, 201, 202, 301, 302, 303, 304; however, he will not receive credit for 101 and 102. If student presents at least two years of high school foreign language, and places by test in 201, his sequence of courses would be: 201, 202, 301, 302, 303, 304.

[3] Related Work totaling 18 hours, to be approved by the departmental chairman, may be selected from: Fine Arts, History, English Literature, Linguistics, Political Science, Economics, Anthropology, Philosophy, or additional science courses.

FRENCH

A major in French leading to the B.A. degree consists of French 201, 202, 301, 302, 303, 304, and 12 hours of French courses on the 400 level, which must include French 492. In addition, 18 hours of related work will be required.

101. ELEMENTARY FRENCH. (3) Fundamentals of French grammar, with particular stress on correct pronunciation and self-expression through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY FRENCH. (3) Prerequisite: French 101. Continuation of French 101. Graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE FRENCH. (3) Prerequisite: French 102. Readings and conversation on French civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE FRENCH. (3) Prerequisite: French 201. Readings and conversation on French civilization. Selected readings in French prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: French 202. For prospective teachers of French and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: French 301. Continuation of French 301. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF FRENCH LITERATURE TO 1800. (3) Prerequisite: French 202. Selected readings in prose and poetry from the Middle Ages to 1800. Emphasis on each literary movement. Book reports on collateral readings.

304. SURVEY OF FRENCH LITERATURE SINCE 1800. (3) Prerequisite: French 202. Continuation of French 303. Book reports on collateral readings.

321. SELECTED READINGS IN FRENCH LITERATURE I. (3) Prerequisite: French 202. Book reports on collateral readings.

322. SELECTED READINGS IN FRENCH LITERATURE II. (3) Prerequisite: French 202. Continuation of French 321. Book reports on collateral readings.

401. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3) Prerequisite: two 300-level courses. Collateral readings.

403. FRENCH LITERATURE OF THE NINETEENTH CENTURY. (3) Prerequisite: two 300-level courses. Collateral readings.

405. THE AGE OF ENLIGHTENMENT. (3) Prerequisite: two 300-level courses. Collateral readings.

408. THE CLASSICAL PERIOD. (3) Prerequisite: two 300-level courses. Collateral readings.

414. FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. (3) Prerequisite: two 300-level courses. Collateral readings.

416. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. (3) Prerequisite: two 300-level courses. Collateral readings.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental chairman. Comprehensive review of the major field. Collateral readings and term papers. Required of all French majors.

GERMAN

101. ELEMENTARY GERMAN. (3) Fundamentals of grammar, with particular stress on correct pronunciation and self-expression through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY GERMAN. (3) Prerequisite: German 101. Continuation of German 101, and graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE GERMAN. (3) Prerequisite: German 102. Readings and conversation on German civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE GERMAN. (3) Prerequisite: German 201. Readings and conversation on German civilization. Selected readings in German prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: German 202. For

prospective teachers of German, and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: German 301. Continuation of German 301. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202. General introduction to German literature from the Middle Ages to the Classical Period. Book reports on collateral readings.

304. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202. German literature since classicism. Book reports on collateral readings.

311. SELECTED READINGS IN GERMAN LITERATURE I. (3) Prerequisite: German 202. Book reports on collateral readings.

312. SELECTED READINGS IN GERMAN LITERATURE II. (3) Prerequisite: German 202. Book reports on collateral readings.

321. ADVANCED SCIENTIFIC GERMAN. (3) Prerequisite: German 202. Readings and translations of German publications in the field of science with emphasis on the student's major field of concentration.

322. ADVANCED SCIENTIFIC GERMAN. (3) Prerequisite: German 202. Readings and translations of German publications in the field of concentration.

401. GERMAN CLASSICISM. (3) Prerequisite: two 300-level courses. Storm and stress. Early classicism. Book reports on collateral readings.

402. GERMAN ROMANTICISM. (3) Prerequisite: two 300-level courses. Late classicism and romanticism. Book reports on collateral readings.

407. GERMAN POETRY FROM HOELDERLIN TO THE PRESENT. (3) Prerequisite: two 300-level courses. An analysis of the chief lyric poets, literary movements, and types of German poetry.

414. TWENTIETH CENTURY GERMANY AS REFLECTED IN LITERATURE. (3) Prerequisite: two 300-level courses. Political and social events from World War One to the present

day, as reflected in German literature. Book reports on collateral readings.

RUSSIAN

101. ELEMENTARY RUSSIAN. (3) Fundamentals of Russian grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY RUSSIAN. (3) Prerequisite: Russian 101. Continuation of Russian 101. Graded readings. Three lecture hours and one laboratory period of one hour a week.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, and 12 hours of Spanish courses on the 400 level, which must include Spanish 492. In addition, 18 hours of related work will be required.

101. ELEMENTARY SPANISH. (3) Fundamentals of Spanish grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three lecture hours and one laboratory period of one hour a week.

102. ELEMENTARY SPANISH. (3) Prerequisite: Spanish 101. Continuation of Spanish 101, and graded readings. Three lecture hours and one laboratory period of one hour a week.

201. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 102. Readings and conversation on Spanish civilization. Review grammar. Three lecture hours and one laboratory period of one hour a week.

202. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 201. Readings and conversation on Spanish civilization. Selected readings in Spanish prose. Review grammar. Three lecture hours and one laboratory period of one hour a week.

301. ADVANCED GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: Spanish 202. For prospective teachers of Spanish, and students who want intensive oral and written work in the language. Book reports on collateral readings. Three lecture hours and one laboratory period of one hour a week.

302. ADVANCED GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: Spanish 301. Continuation of Spanish 301. Three lecture hours and one laboratory period of one hour a week.

303. SURVEY OF SPANISH AND SPANISH-AMERICAN LITERATURE TO 1700. (3) Prerequisite: Spanish 202. Book reports on collateral readings. Required of Spanish majors.

304. SURVEY OF SPANISH AND SPANISH-AMERICAN LITERATURE SINCE 1700. (3) Prerequisite: Spanish 202. Required of Spanish majors.

321. SELECTED READINGS IN SPANISH LITERATURE I. (3) Prerequisite: Spanish 202. Book reports on collateral readings.

322. SELECTED READINGS IN SPANISH LITERATURE II. (3) Prerequisite: Spanish 202. Book reports on collateral readings.

401. THE GENERATION OF 1898 AND THE 20TH CENTURY I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

402. THE GENERATION OF 1898 AND THE 20TH CENTURY II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

403. EIGHTEENTH AND NINETEENTH CENTURY SPANISH LITERATURE I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

404. EIGHTEENTH AND NINETEENTH CENTURY SPANISH LITERATURE II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

405. THE GOLDEN AGE OF SPANISH LITERATURE I. (3) Prerequisite: two 300-level courses. From Garcilaso de la Vega to Calderon de la Barca. Book reports on collateral readings.

406. THE GOLDEN AGE OF SPANISH LITERATURE II. (3) Prerequisite: two 300-level courses. From Garcilaso de la Vega to Calderon de la Barca. Book reports on collateral readings.

409. SPANISH-AMERICAN LITERATURE I. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

410. SPANISH-AMERICAN LITERATURE II. (3) Prerequisite: two 300-level courses. Book reports on collateral readings.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing, and permission of the departmental chairman. Comprehensive review of the major field. Book reports on collateral readings. Term papers. Required of all Spanish majors.

GEOGRAPHY

Instructors Clay, Gibbs

101. PHYSICAL GEOGRAPHY. (4) Land forms, mineral resources, climate, vegetation, soils, and water from the point of

view of their significance to economic activities. Three lecture hours and one laboratory period of two hours a week.

102. REGIONAL WORLD GEOGRAPHY. (3) Regional geography dealing with various peoples of the earth and how they and their activities are influenced by topography, climate, and natural resources. Three lecture hours a week.

201. ECONOMIC GEOGRAPHY. (3) Prerequisite: Geography 101 or Geography 102. Study of the products of agriculture, commerce and industry and the conditions which affect their production, exchange and consumption.

301. GEOGRAPHY OF LATIN AMERICA. (3) Prerequisite: Geography 101 or Geography 102. Basic human and physical differences from place to place which affect economic, social, and political conditions. Cultural and economic relations with Europe and the United States. Three lecture hours a week.

302. GEOGRAPHY OF NORTH AMERICA. (3) A study of climatic and other physical features of North America and their influence on the economic and cultural development of the United States and Canada.

GEOLOGY

Instructor Gibbs

201. PHYSICAL GEOLOGY. (4) The nature and occurrence of rocks and minerals, together with crustal features of the earth's surface. Emphasis on earth phenomena. Three lecture hours and one laboratory period of two hours a week.

202. HISTORICAL GEOLOGY. (4) Prerequisite: Geology 201, Geography 101, or Biology 101. Emphasis on stratigraphic and fossil history of the earth as found in the earth's crust together with the necessary information on both plant and animal kingdoms to trace the evolution of life down through the ages. Three lecture hours and one laboratory period of two hours a week. Two or more one-day field trips to be arranged.

301. MINERALOGY. (4) Prerequisites: Chemistry 102; Geology 201. Identification of the common and economically important minerals by means of the physical properties; chemical and blow-pipe tests. Principles of crystallography. Three lecture hours and one laboratory period of three hours a week.

302. GEOMORPHOLOGY. (4) Prerequisite: Geology 201. Major earth features and their origin with particular reference to North America. Three lecture hours and one laboratory period of two hours a week.

HEALTH EDUCATION

101. HEALTH EDUCATION. (1) A general introductory course. Basic ideas of human anatomy, physiology, and chemistry are applied toward an understanding of human health problems. Two lecture hours a week.

409. HEALTH EDUCATION LABORATORY. (2) Prerequisite: Education 303. Health instruction, principles of health teaching for the elementary grades.

HISTORY AND POLITICAL SCIENCE

Professors Rieke, Chairman, Hall, Winningham; Associate Professors Abernathy, Blackwelder; Assistant Professors Morrill, Ploger, Robbins; Instructors Brantley, Brenner, Perzel, Randazzo, Wise, Young

HISTORY

A major in History leading to the B.A. degree, except for students in the elementary certification program, consists of 32 semester hours of history, including Modern Western Civilization (6), American History (6), and Tutorial in History (2). Related work consists of 15 semester hours.

A major in History leading to the B.A. degree for students in the elementary certification program consists of 27 hours of history, including Modern Western Civilization (6) and American History (6). Related work consists of 21 hours as outlined in the general requirements of the elementary certification program.

Except by special permission, no student may enroll in a 300-400 level course in U. S. History without Junior-Senior standing and credit for History 201-202 or their equivalent.

Except by special permission, no student may enroll in a 300-400 level course in any other field without Junior-Senior standing.

101. MODERN WESTERN CIVILIZATION TO 1815. (3) This course commences with a broad survey of Ancient and Medieval contributions to Modern Western Civilization and then treats intensively the development of Western Civilization from the Renaissance to 1815.

102. MODERN WESTERN CIVILIZATION FROM 1815 TO THE PRESENT. (3) Prerequisite: History 101. Continuation of History 101 with greater emphasis on developments outside the Atlantic community of Western Civilization.

201. AMERICAN HISTORY. (3) Survey of American history from the earliest times to 1865.

202. AMERICAN HISTORY. (3) Prerequisite: History 201. Survey of American history from 1865 until the present.

305. ANCIENT HISTORY. (3) From the earliest civilizations until the fourth century A.D.

306. MEDIEVAL HISTORY. (3) Political and cultural developments from the late Roman Empire until the Renaissance.

307. RENAISSANCE AND REFORMATION. (3) The intellectual and religious transformations of the early modern period and their political repercussions, 1300-1648.

311. RUSSIAN HISTORY. (3) Survey of Russian history until 1825.

312. RUSSIAN HISTORY. (3) Survey of Russian history from 1825 until the present.

317. NINETEENTH CENTURY EUROPE, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna. Emphasis will be placed on liberalism, nationalism, imperialism, and the diplomatic agreements leading to World War I.

318. TWENTIETH CENTURY EUROPE, 1914 TO THE PRESENT. (3) A review of the causes and results of World War I followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II, and the post-war period.

333. AMERICAN ECONOMIC HISTORY SINCE 1800. (3) Development of a national economy, including monetary and banking problems, industrialization, and problems of labor and agriculture.

334. AMERICAN LABOR HISTORY. (3) Life and thought of American workingmen from the colonial period to the present, with attention to both the individual and to the development of labor organizations.

336. ORIGINS OF THE AMERICAN CONSTITUTION. (3) The historical and philosophical background which led to the adoption of the American Constitution. Emphasis is placed on the Constitution's heritage from the Enlightenment, and the English and Colonial background. The course traces the writing and development of the Constitution through the Marshall Court.

339. HISTORY OF NORTH CAROLINA. (3) Emphasis on the colonial developments and on the constitutional, educational and transportation developments of the ante-bellum period.

343. COLONIAL AMERICA. (3) Colonial history from the discoveries to 1763.

344. THE AMERICAN REVOLUTION AND EARLY NATION. (3) The achievement of independence and the creation of a national identity, 1763-1830.

361. BRITAIN TO 1485. (3) Survey of British history with emphasis on institutional, cultural, economic, and imperial developments.

362. MODERN BRITAIN, 1485-1789. (3) Continuation of History 361 with some treatment of the British Empire.

363. MODERN BRITAIN AND THE BRITISH EMPIRE SINCE 1789. (3) Continuation of History 362 with greater emphasis on the Empire and Commonwealth.

401. THE AGE OF ABSOLUTISM. (3) The problems of statecraft in the major continental countries, with some emphasis on cultural developments, 1648-1789.

402. FRENCH REVOLUTION AND NAPOLEON. (3) The changes in French politics and society and their effect on the Western World, 1789-1815.

431. AMERICA IN CRISIS, 1824-1860. (3) A consideration of the new American nation in crisis. Attention is given to the development of nationalism under Jackson, the expansion of the new nation, the growth of sectionalism, and the events leading to secession.

432. CIVIL WAR AND RECONSTRUCTION, 1860-1877. (3) Prerequisite: consent of instructor. A study of the American people in war and post-war adjustment. Emphasis is placed on the political, social, and economic conditions of the North and South during the Civil War and Reconstruction period.

433. AMERICAN SOCIAL AND INTELLECTUAL HISTORY TO 1860. (3) Development of American social institutions and thought from the beginnings to the Civil War. The course is conducted as a colloquium, combining lectures, discussions, extensive reading, and oral reports and a research paper by each student.

434. AMERICAN SOCIAL AND INTELLECTUAL HISTORY SINCE 1860. (3) Continuation of History 403 from the Civil War to the present.

461. TUDOR ENGLAND, 1485-1603. (3) Treatment in depth of the English Reformation, the English Renaissance, and the creation of English naval and economic power.

462. STUART ENGLAND, 1603-1714. (3) Treatment in depth of the socio-economic and political phases involved in the Civil

War, Restoration and Glorious Revolution, and International and Colonial involvement.

491. TUTORIAL IN HISTORY. (2) Required of all history majors. Seminar in historical method, bibliography, and purpose of historical writing. A major research paper under the direction of a staff member.

POLITICAL SCIENCE

A major in Political Science leading to the B.A. degree consists of 27 semester hours of political science, among which must be included Introduction to Politics and Government (3), Introduction to American Politics (3), and Senior Seminar (3). Related work consists of 18 semester hours.

Political Science 200 is a prerequisite for all other courses in Political Science.

The offerings in Political Science are divided into five major areas as follows:

1. American Politics: Political Science 201, 212, 302, 303, 304, 418, 421, 450
2. Comparative Politics: Political Science 231, 331, 336, 446, 450
3. International Relations: Political Science 362, 364, 450, 462
4. Political Thought: Political Science 353, 354, 450, 458
5. Political Science as a Discipline: Political Science 450, 492, 493

200. INTRODUCTION TO POLITICS AND GOVERNMENT. (3) An introduction to the concept of government which examines the phenomena of conflict, power, order and authority implicit in the term "government," as well as the various types of governmental systems and structures which men have established.

201. INTRODUCTION TO AMERICAN POLITICS. (3) Prerequisite: Political Science 200. The formal and informal political institutions of the United States in their historical, cultural and ideological context. The evolution of the modern constitution, co-operative federalism, equal suffrage and constitutional rights. The making and affecting of public policy.

212. STATE AND URBAN POLITICS. (3) Prerequisite: Political Science 200. The states in the federal system: their history, constitutions, governmental structure, and relations with other units of government; the problems of urban areas. Politics and policy formation at each level of government.

231. COMPARATIVE POLITICS: TOTALITARIANISM AND DEMOCRACY. (3) Prerequisite: Political Science 200. A comparative analysis of the Soviet and American political systems,

with emphasis on the means by which power is gained and wielded in the two societies. Historical and cultural experience is considered.

302. POLITICS, POLITICAL PARTIES AND PRESSURE GROUPS. (3) Prerequisite: Political Science 200. Analysis of the structure, role, and techniques of political parties in the United States. The modern political system analyzed as the evolutionary product of the nation's political history. The role of non-party groups in the political process.

303. VOTING BEHAVIOR AND PUBLIC OPINION. (3) Prerequisite: Political Science 200. Analysis of the significant findings concerning the social, psychological and political determinants of voting. The relationship between public opinion and the making of public policy.

304. THE PRESIDENT AND CONGRESS. (3) Prerequisite: Political Science 200. The role of the President and Congress in the formation of policy in the American political system.

331. COMPARATIVE POLITICAL SYSTEMS OF WESTERN EUROPE. (3) Prerequisite: Political Science 200. A comparative analysis of the politics and political institutions of Western Europe, especially Great Britain, France, and Germany.

336. THE POLITICS OF THE SOVIET BLOC. (3) Prerequisite: Political Science 200. A comparative analysis of the politics and political institutions of the USSR and the satellites. Special reference will be made to the Communist ideology in actual practice.

353. HISTORY OF POLITICAL THOUGHT. (3) Prerequisite: Political Science 200. Major concepts and systems of political thought from Plato to the Seventeenth Century.

354. HISTORY OF POLITICAL THOUGHT. (3) Prerequisite: Political Science 200. Continuation of Political Science 353. Major concepts and systems of political thought from Seventeenth Century until the present. The relevance of political thought to political action.

362. AN INTRODUCTION TO INTERNATIONAL POLITICS AND INSTITUTIONS. (3) Prerequisite: Political Science 200. Analysis of politics among nations: material and psychological sources of national power, the role of law, force, and diplomacy in world politics, problems of peace and disarmament, and international organizations.

364. AMERICAN FOREIGN POLICY. (3) Prerequisite: Political Science 200. The problem of defining the objectives of foreign policy in the United States and of selecting the means for achiev-

ing them; past, present, and suggested American strategies in world politics. Comparisons will be made with the processes and issues in other nations.

418. PUBLIC ADMINISTRATION. (3) Prerequisite: Political Science 200. An institutional and behavioral analysis of the administrative process. Includes: the rise of the administrative state, its impact on administrative theory and practice, and the nature of the new public bureaucracy; the tasks of the administrator; the political environment of administration; organization, personnel, and finance; the regulatory function and administrative law; and administrative responsibility.

421. THE SUPREME COURT. (3) Prerequisite: Political Science 200. Analysis of the content of historic Supreme Court decisions as well as an investigation into the role of the Court in the American political system.

446. POLITICAL SYSTEMS IN TRANSITION. (3) Prerequisite: Political Science 200. The comparative political experience of selected less developed countries.

450. SELECTED TOPICS IN POLITICAL SCIENCE. (3) Prerequisite: Political Science 200. An intensive study of a topic in political science. Topics chosen may vary from semester to semester. A student may take more than one course under this number.

458. AMERICAN POLITICAL THOUGHT. (3) Prerequisite: Political Science 200. American political thought from colonial times to the present. The European origins of American political thought are a major part of the course.

462. POLITICAL FOUNDATIONS OF INTERNATIONAL ORDER. (3) Prerequisite: Political Science 200. The structure, processes, and problems of current general and regional international organizations, with some attention to international law.

492. SENIOR SEMINAR: THE SCOPE OF MODERN POLITICAL SCIENCE. (3) Prerequisite: Political Science 200. A course in the "how" and "why" of the discipline rather than the "what." The staff in Political Science will lead the seminar in the consideration of: (1) major works in Political Science (books and scholarly articles), (2) some more important theories currently guiding research in the discipline, and (3) the present posture or direction of the discipline.

493. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Political Science 492, Mathematics 222. (This course is also listed as Sociology 410.) Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data. Rec-

ommended for students considering graduate work in the social sciences.

MATHEMATICS

Professors Wahab, Chairman; Goodrum,[1] Perel; Associate Professors Markham, Schell; Assistant Professors Embry, Lawrence, Nixon, Teague, Thomas; Instructors Beam, Davis, Herr, Marshall, Morrow

A major in mathematics for the B.A. degree consists of 27 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department.

A major in mathematics for the B.S. degree consists of 40 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department. For the B.S. degree, a mathematics major must choose French, German, or Russian to satisfy the language requirement.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103 and 104, unless exempted by the department. It is recommended that a prospective freshman major enroll in these courses during the summer session immediately preceding his freshman year.

The B.S. Degree in Mathematics, Curriculum Outline

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Foreign Language 201	3	Foreign Language 202	3
Science	4	Science	4
	17		17

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 2xx	3
Foreign Language 301	3	Mathematics	3
Science	4	Mathematics 242	4
Mathematics 241	4	Science	4
Social Science	3	Social Science	3
	17		17

[1] On leave of absence, 1964-1965.

JUNIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	6
Social Science	3	Humanities	3
Humanities	3	Related Work	6-8
Related Work	3-4		
	15-16		15-17

SENIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	3-6
Related Work	6-8	Related Work	3-6
		Electives	3-9
	12-14		12-15

The B.A. Degree in Mathematics, Curriculum Outline

The curriculum outline for the B.A. degree is essentially the same as for the B.S. degree, except that up to 13 semester hours of mathematics courses may be replaced by an equal number of semester hours of electives.

101. ELEMENTARY ALGEBRA. (3) Sets, logic, algebraic structures. (Credit for both 101 and 103 will not be given.)

102. ELEMENTARY ANALYSIS. (3) Prerequisite: Mathematics 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to the social and life sciences.

103. ALGEBRA. (3) Sets, logic, an axiomatic treatment of the real numbers as a complete ordered field, solution sets of equations and inequalities, matrices, complex numbers, and mathematical induction. (Credit for both 101 and 103 will not be given.)

104. VECTOR ALGEBRA. (3) Prerequisite or corequisite: Mathematics 103. Algebra and geometry of vectors, with trigonometry.

141. INTRODUCTORY ANALYSIS I. (4) Prerequisites: Mathematics 103 and 104, with a grade of C or better in each. (If a student can show to the satisfaction of the Mathematics Department that his knowledge of Mathematics 103 or 104 is adequate, he may be exempted from taking one or both of these courses as prerequisites for Mathematics 141.) The first course of a four semester sequence, including vector spaces, linear transformations, analytic geometry, the calculus of vector functions of vector variables, differential equations, and numerical methods. Three lecture hours and two problem hours per week.

142. INTRODUCTORY ANALYSIS II. (4) Prerequisite:

Mathematics 141, with a grade of C or better. A continuation of Mathematics 141. Three lecture hours and two problem hours per week.

221. INTRODUCTION TO PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 102 or consent of the Department. The first course of a two semester sequence of a modern introduction to the mathematical theory of probability and statistics with applications.

222. INTRODUCTION TO PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 221. A continuation of Mathematics 221.

231. PROGRAMMING FOR DIGITAL COMPUTERS. (1) Prerequisite or corequisite: Mathematics 102 or 141. Construction and use of flow charts, use of a compiler and assembly program, and Fortran. Intended primarily for students in the sciences and social sciences who will want to make use of a computer during their junior and senior years. One two-hour laboratory period per week.

241. INTRODUCTORY ANALYSIS III. (4) Prerequisite: Mathematics 142, with a grade of C or better. A continuation of Mathematics 142. Three lecture hours and two problem hours per week.

242. INTRODUCTORY ANALYSIS IV. (4) Prerequisite: Mathematics 241, with a grade of C or better. A continuation of Mathematics 241. Three lecture hours and two problem hours per week.

311. OPERATIONS RESEARCH I. (3) Prerequisite: Mathematics 222 or consent of the department. The first course of a two semester sequence, including matrix algebra, convex sets, linear programming, and the theory of games.

312. OPERATIONS RESEARCH II. (3) Prerequisite: Mathematics 311. A continuation of Mathematics 311.

322. PROBABILITY AND STATISTICS. (3) Prerequisites: Mathematics 222 and 242. Sample spaces and random variables, limit theorems, stochastic processes, estimation, and hypothesis testing.

331. COMPUTER SCIENCE I. (3) Prerequisite: Mathematics 141 or 221; prerequisite or corequisite: Mathematics 231, or consent of the department. The first course of a two semester sequence including the characteristics, language, and logical design of computers, with applications in the behavioral and physical sciences.

332. COMPUTER SCIENCE II. (3) Prerequisite: Mathematics 331. A continuation of Mathematics 331.

343. ANALYSIS I. (3) Prerequisite: Mathematics 241, with a grade of C or better. The first course of a three semester sequence including real and complex number systems, sets, limits, and continuity, differentials of functions of one and several variables, applications of partial differentiation, functions of bounded variation, rectifiability, connectedness, the Riemann-Stieltjes integral, multiple integrals, line integrals, vectors and vector fields, gradients, divergence, curl, and the Laplacian.

344. ANALYSIS II. (3) Prerequisite: Mathematics 343. A continuation of Mathematics 343.

350. TOPICS IN MATHEMATICS. (Two or three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as set theory, linear algebra and geometry, and probability. This course is designed to serve particular needs, not served by other departmental offerings, such as the needs of the National Science Foundation Institute for Teachers.

361. LINEAR ALGEBRA. (3) Prerequisite: Mathematics 142 or consent of the department. Algebra and geometry of vector spaces, linear transformations and matrices, linear equations and characteristic values.

362. NUMBER THEORY. (3) Prerequisite: consent of the department. Introductory topics from the theory of rational and algebraic integers.

363. MODERN ALGEBRA I. (3) Prerequisite: Mathematics 242 or consent of the department. The first course of a two semester sequence covering topics in group theory, rings and ideals, fields, and Galois theory.

364. MODERN ALGEBRA II. (3) Prerequisite: Mathematics 363. A continuation of Mathematics 363.

371. APPLIED MATHEMATICS I. (3) Prerequisite: Mathematics 242, with a grade of C or better. The first course of a two semester sequence including vector analysis, complex variables, Fourier series and Fourier integrals, special functions, operational mathematics, probability theory, calculus of variations, the Laplace transform, and partial differential equations.

372. APPLIED MATHEMATICS II. (3) Prerequisite: Mathematics 371. A continuation of Mathematics 371.

381. FUNDAMENTAL CONCEPTS OF GEOMETRY. (3) Prerequisite: Mathematics 142 or consent of the department.

Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

391. SEMINAR. (2) Prerequisite: consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

392. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 391.

403. ARITHMETIC IN THE SCHOOL. (3) Prerequisite: Mathematics 102 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration, and the number line appropriate for each grade. (Does not count toward a major in mathematics.)

409. HISTORY OF MATHEMATICAL THOUGHT. (3) Prerequisite: Mathematics 102 or 141. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. (Does not count toward a major in mathematics.)

443. ANALYSIS III. (3) Prerequisite: Mathematics 344. A continuation of Mathematics 344.

450. SELECTED TOPICS IN MATHEMATICS. (Two or three semester hours credit, but may be repeated for credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as topology, differential geometry, complex analysis, applied mathematics, or modern algebra.

491. SEMINAR. (2) Prerequisite: consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 491.

MUSIC

Instructor Woodruff

101. CHORUS I. (1) Opportunity for students who enjoy singing to gain basic training in the principles of voice production through choral participation in the University Chorus. Repertoire of both sacred and secular music. Public appearances through assembly programs, radio and television presentations, school and civic club visits, and commencement exercises. Only four semester hours of chorus may be credited toward a degree.

102. CHORUS I. (1) Continuation of Music 101.

103. INDIVIDUAL VOICE STUDY. (1) Basic techniques of singing: classification of the voice, breathing, posture, freedom and vitalization of tone, vocalization, elements of diction, simple songs in English and Italian. One hour of practice daily.

104. INDIVIDUAL VOICE STUDY. (1) Continuation of Music 103. One hour of practice daily.

201. CHORUS II. (1) Choral training and presentation with the University Chorus.

202. CHORUS II. (1) Continuation of Music 201.

203. PROGRESSIVE VOICE STUDY. (1) Standard classics in English and Italian with additional study of songs in French, German, or Spanish. Memorization of basic repertoire with application of sound principles of interpretation. One hour of practice daily.

204. PROGRESSIVE VOICE STUDY. (1) Continuation of Music 203. One hour of practice daily.

205. MUSIC APPRECIATION. (2) Designed primarily to enhance the enjoyment of listening to music and to develop the art of discrimination through understanding. Emphasis is placed on maximum exposure to fine music through recordings, films, and live presentations. No previous technical knowledge required.

301. CHORUS III. (1) Choral training and presentations with the University Chorus.

302. CHORUS III. (1) Continuation of Music 301.

303. ADVANCED VOICE STUDY. (1) Continuation of Music 204. One hour of practice daily.

304. ADVANCED VOICE STUDY. (1) Continuation of Music 303. One hour of practice daily.

307. MUSIC FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite or corequisite: Education 303. Methods and materials of instruction which the teacher can apply in a music program in the elementary school.

401. CHORUS IV. (1) Continuation of Music 302.

402. CHORUS IV. (1) Continuation of Music 401.

403. ADVANCED VOICE STUDY. (1) Continuation of Music 304. One hour of practice daily.

404. ADVANCED VOICE STUDY. (1) Continuation of Music 403. One hour of practice daily.

NURSING

Associate Professor Brocker, Chairman; Assistant Professor Caddell

For the degree of Bachelor of Science with a major in Nursing, 46 semester hours in Nursing and 15 to 19 semester hours in related work are required. A total of 130 semester hours is required.

All clinical courses are taught in related hospitals and other community health agencies and provide the laboratory setting for the application of theoretical content in actual patient and/or family situations.

It is recommended that Chemistry, Biology, and a foreign language be taken in high school in preparation for the Nursing program.

Suggested Course of Study for a Bachelor of Science Degree with a Major in Nursing

FRESHMAN YEAR

	Sem. Hrs.		Sem. Hrs.
English 101	3	English 102	3
Mathematics 101	3	Mathematics 102	3
Chemistry 101	4	Chemistry 102	4
Biology 101	4	Nursing 102	3
Foreign Language 201	3	Foreign Language 202	3
	17		16

SOPHOMORE YEAR

	Sem. Hrs.		Sem. Hrs.
Biology 204	4	Biology 203	4
Sociology 201	3	Psychology 201	4
Foreign Language 300	3	Nursing 204	2
English 201	3	English 202, 203, or 204	3
Nursing 201	4	Nursing 202	4
	17		17

JUNIOR YEAR

	Sem. Hrs.		Sem. Hrs.
History 101	3	History 102	3
Elective (related work)	3	Sociology 303	3
Elective (Humanities)	3	Psychology 202	3
Nursing 301	5	Nursing 302	5
Elective (related work)	3	Elective (related work)	3
	17		17

SENIOR YEAR

	Sem. Hrs.		Sem. Hrs.
Psychology 307	3	Elective (Humanities)	3
Nursing 401	5	Nursing 402	5
Nursing 403	5	Nursing 404	4
Nursing 491	2	Nursing 492	2
	15		14

102. ECOLOGY OF MAN I. (3) The focus of this course is directed toward understanding the relationship of the ill person to his family and community. Major health problems and facilities provided by society for meeting health needs will be included in the content. Lectures, field trips.

201. FUNDAMENTALS OF NURSING. (4) Prerequisite or corequisite: Nursing 102. Study of the basic concepts and principles essential for the nursing care of adults and children. Emphasis is placed on the correlation of principles of nursing with concepts of behavioral and natural sciences. Two hours lecture, six hours laboratory assignment in patient care areas.

202. FUNDAMENTALS OF NURSING II. (4) A continuation of Nursing 201.

204. ECOLOGY OF MAN II. (2) Prerequisite: Nursing 102 or consent of the department. A laboratory course. Students will work with carefully selected families, performing appropriate nursing functions. Individual and group study. Field work.

301. FUNDAMENTALS OF NURSING III. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and meet the needs of adults and children undergoing medical therapy or surgical intervention for acute and long term illness.

302. FUNDAMENTALS OF NURSING IV. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and to meet nursing needs of mothers (obstetric nursing), the new born, and children.

401. FUNDAMENTALS IN NURSING V. (Psychiatric Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. A study of fundamental principles and techniques of nursing skills necessary for working with patients with emotional disorders. Emphasis is placed on nurse-patient relationships leading to development in interpersonal skills which result in therapeutic changes in behavior.

402. FUNDAMENTALS IN NURSING VI. (Advanced Patient Care). (5) Prerequisites: 200 and 300 level courses in nursing.

This course will provide opportunities to increase knowledge and skill in the care of critically ill patients in the Intensive Care Units.

403. FUNDAMENTALS OF NURSING VII. (Public Health Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. Considers concepts and philosophy of public health nursing; functions and responsibilities of the public health nurse in the community. Laboratory experience in community health nursing and public health agency settings.

404. FUNDAMENTALS OF NURSING VIII (Leadership in Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. Study of principles of administration in nursing in hospitals and public health agencies; focuses on management of nursing care of patients. Opportunities for participation in management functions will be provided in the hospital.

491. SEMINAR IN NURSING I. (2) Corequisites 401 or 402 and 404. Intellectual inspection and identification of common concepts in clinical nursing with the intent to broaden and deepen the understanding of specialties of nursing.

492. SEMINAR IN NURSING II. (2) Corequisites: 401 and 403 or 402 and 404. Dialogues in philosophy of nursing.

PHILOSOPHY

Assistant Professors Witherspoon and Corkey

201. SYSTEMATIC INTRODUCTION. (3) The major issues in philosophy. Typical problems such as moral freedom, the mind-body relationship, and the status of moral judgments. The schools of materialism, idealism, realism, and pragmatism described.

205. INTRODUCTION TO LOGIC. (3) A survey of the general principles of deductive and inductive logic and of the nature of scientific method. Elements of symbolic logic.

301. ETHICS. (3) A survey of the development of ethical thought in ancient and modern times, with special references to present day ethical problems.

302. ANCIENT PHILOSOPHY FROM THALES TO PLOTINUS. (3) Prerequisite: Philosophy 201 or Junior standing. An inquiry into the history of Western thought from the early Greeks to the Post-Socratic schools. Pre-Socratics, Plato, Aristotle, Epicureanism, Stoicism, Neoplatonism, and Greek Skepticism.

303. MODERN PHILOSOPHY FROM DESCARTES TO

KANT. (3) Prerequisite: Philosophy 201 or Junior standing. An inquiry into the history of Western thought in the seventeenth and eighteenth centuries.

304. RECENT AND CONTEMPORARY PHILOSOPHY. (3) Prerequisite: Philosophy 201 or Junior standing. An inquiry into the history of Western thought in the nineteenth and twentieth centuries.

350. TOPICS IN PHILOSOPHY. (3) May be repeated for additional credit with the approval of the department. Prerequisite: Consent of the department. Topics to be chosen from such fields as Platonism, Aristoteleanism, medieval philosophy, British empiricism, idealism, pragmatism, and others to meet the needs and interests of the student.

401. PHILOSOPHY OF RELIGION. (3) Prerequisites: Philosophy 201 and Junior standing. A discussion of the philosophical implications of religious experience. The definitions, development, and diverse forms of the problems of belief and reason in modern thought.

402. PHILOSOPHY OF THE EAST. (3) Prerequisite: six hours of philosophy. A survey of thought in the East from ancient to modern times. Special emphasis on the philosophical concepts of Hinduism, Buddhism, Confucianism, and Taoism.

425. AMERICAN PHILOSOPHY. (3) Prerequisites: Philosophy 201, Junior standing, and consent of the instructor. The emergence of American thought from its matrix in earlier theological, social, and literary thought. Chief emphasis on the late nineteenth and early twentieth centuries.

491. SEMINAR. (2) Prerequisite: Consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: Consent of the department. A continuation of Philosophy 491.

PHYSICAL EDUCATION

101. FOUNDATIONS OF PHYSICAL ACTIVITY. (1) The application of various physical training programs designed to improve and maintain physical fitness. One-sixth of the meeting time will be devoted to lectures on physiological and psychological aspects of physical training. Three one-hour meetings a week.

102. TEAM SPORTS. (1) The skills and rules of two sports selected from soccer football, rugby football, field hockey, speedball, and volleyball will be taught. Three hours each week.

114. FENCING. (1) The skills and rules of the sport of fencing will be taught. Three hours each week.

409. PHYSICAL EDUCATION LABORATORY. (2) Prerequisite: Education 303. Physical education instruction, principles of physical education teaching for the elementary grades.

PHYSICS

Associate Professor, Tanner; Assistant Professor Vermillion

101. INTRODUCTORY PHYSICS. (4) Prerequisite or corequisite: Mathematics 101 or Mathematics 103. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g., relativity, quantum mechanics, elementary particles) in order to illustrate the logical structure of modern science. Three lecture hours and one three hour laboratory each week.

102. INTRODUCTORY PHYSICS. (4) Prerequisite: Physics 101. A continuation of Physics 101. Three lecture hours and one three hour laboratory each week.

201. FOUNDATIONS OF PHYSICS I. (4) Corequisite: Mathematics 142. Logical, mathematical, and empirical structure of the major concepts and principles of physics. Topics from kinematics, dynamics (classical and relativistic), electromagnetism, wave theory, and elementary quantum theory will be selected to emphasize such fundamental concepts as conservation laws, symmetry principles, nature of space and time. Three lecture hours and one three hour laboratory each week.

202. FOUNDATIONS OF PHYSICS II. (4) Prerequisite: Physics 201. A continuation of Physics 201. Three lecture hours and one three hour laboratory each week.

300. SPECIAL TOPICS. (One to three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: Physics 202. Used to comply with requests for special topics from such fields as special relativity, solid state physics, advanced quantum physics, advanced statistical physics.

301. CLASSICAL MECHANICS. (3) Prerequisites: Physics 202 and Math 241. Dynamics of particles. Small oscillations. Rigid bodies. Lagrange's and Hamilton's formulations.

302. CLASSICAL ELECTROMAGNETIC THEORY. (3) Prerequisite: Physics 301 or consent of Physics Department. Electric and magnetic fields. Potential theory. Energy relations. Maxwell's Equations. Electromagnetic waves.

311. QUANTUM PHYSICS I. (3) Prerequisite: Physics 202, or consent of department. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of atoms, molecules, and solids.

312. QUANTUM PHYSICS II. (3) Prerequisite: Physics 311. A continuation of Physics 311.

313. INTRODUCTION TO STATISTICAL PHYSICS. (3) Prerequisite: Physics 202 or consent of department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics.

PSYCHOLOGY

Professor Diamant; Assistant Professor Sohn; Instructor Windholz

A major in Psychology leading to the B.A. degree consists of 28 semester hours of Psychology, including General Psychology (201), Experimental Psychology (341), and Seminar (491 or 492).

Psychology majors are also required to take Math 221-222, Probability and Statistics, and a minimum of three courses in areas A and B below. Both areas must be represented in the selection.

A.		B.	
	Anthropology		Biology
	Sociology		Physics
	Philosophy		Chemistry

A total of 15 semester hours in related work, to be arranged with the Department of Psychology, and which may include courses from areas A and B, is to be taken by majors. Twenty-one hours of Education may, if desired by a student taking work in Elementary Education, be substituted for the three courses drawn from A and B.

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Natural Science	4	Natural Science	4
Foreign Language	3	Foreign Language	3
	16		16

3rd Semester		*4th Semester*	
English 201	3	English 202	3
Foreign Language	3	Natural Science	4
Psychology 201	4	Mathematics 222	3
Mathematics 221	3	Psychology Elective	3
Elective	3	Elective	3
	16		16

5th Semester

Experimental Psychology 341	3
Related Work	6
Psychology Elective	3
Electives	6
	18

6th Semester

Psychology Electives	6
Related Work	3
Electives	6
	15

7th Semester

Psychology Seminar 491	3
Related Work	3
Psychology Elective	3
Electives	6
	15

8th Semester

Psychology Electives	3
Related Work	3
Electives	9
	15

201. GENERAL PSYCHOLOGY. (4) Survey of general psychology as a behavioral science. Three lecture hours and one laboratory period of two hours a week.

202. EDUCATIONAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The psychology of learning; problems related to the instructional processes. Case study required.

203. PSYCHOLOGY OF ADJUSTMENT. (3) Prerequisite: Psychology 201. The study of the process of adjustment. Primary consideration given to motivation, frustration and conflict, adjustment mechanisms, and psychotherapy.

301. CHILD PSYCHOLOGY. (3) Prerequisite: Psychology 201. The instincts, emotions, and general tendencies of children up to the age of twelve. Remedial measures suggested in dealing with early child tendencies which might lead to serious school and personality difficulties. Special study of at least one child required for each student.

302. ADOLESCENT PSYCHOLOGY. (3) Prerequisite: Psychology 201. Developmental and psychological characteristics of adolescence. Research methods and familiarity in case study emphasized. School and personality problems studied.

303. SOCIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The social behavior of man. Man's behavior in relation to other individuals, groups, and products of culture, both material and nonmaterial. Group dynamics, leadership, the nature of prejudice, the effects of mass communication, public opinion are some of the topics treated.

305. PSYCHOLOGY OF PERSONALITY. (3) Prerequisite: Psychology 201. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, and perceptual viewpoints in the light of contemporary research.

307. ABNORMAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. A history of psychopathology. Case studies, differential

diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

308. LEARNING THEORY. (3) Prerequisite: Psychology 201. A survey of learning theories including the major associationist, cognitive, and mathematical positions. A comparative approach is taken whenever possible.

341. EXPERIMENTAL PSYCHOLOGY: LEARNING AND MOTIVATION. (3) Prerequisites: Psychology 201 and Math 222. History of the experimental approach to motivation and learning theory, current issues and controversy. Emphasis on laboratory problems. Two lecture hours and one laboratory period of two hours a week.

342. EXPERIMENTAL PSYCHOLOGY: SENSATION AND PERCEPTION. (3) Prerequisites: Psychology 201 and Math 222. Survey of literature on sensation and perception. Introduction to problems and methods in research in sensation and perception. Two lecture hours and one laboratory period of two hours a week.

351. PHYSIOLOGICAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The relationship of the physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

361. PSYCHOLOGICAL SYSTEMS. (3) Prerequisite: Psychology 201. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behaviorist theory. Evaluation of current existential influence.

371. INDUSTRIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. Psychological theories as applied to industry and business. Studies in human engineering and personnel problems.

450. TESTS AND MEASUREMENTS. (3) Prerequisite: Psychology 201. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration, and application of group tests. Individual tests such as Stanford Binet, WISC, and WAIS will be reviewed.

421. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3) Prerequisites: Psychology 201 and 301. Assessing the exceptional child. Emphasis on current research in several diagnostic categories.

491. SEMINAR. (3) Admission by consent of department. Intensive reading and discussion in selected areas. Issues of current importance; social, scientific, and philosophical implications.

492. SEMINAR. (3) Admission by consent of department. A continuation of 491.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology, or (2) major in sociology with related work in psychology (see p. 113-115). Whichever major is chosen, care should be taken to include the following courses: Psychology 303 (Social Psychology), Psychology 305 (Psychology of Personality), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

RELIGION

Assistant Professors Witherspoon and Corkey

201. SURVEY OF THE OLD TESTAMENT. (3) An introduction to the literary and historical values of the Old Testament literature. Emphasis upon the background, purpose, and content of the writings in English translations.

202. SURVEY OF THE NEW TESTAMENT. (3) New Testament literature in its historic and contemporary background. Emphasis upon the content and purpose of the text in English translations.

203. COMPARATIVE RELIGIONS. (3) A survey of man's religious consciousness from the earliest intimations of its awakening to the development of the world's living religions today, utilizing modern research among contemporary primitive cultures and translations of the primary sources of the world's great scriptures.

301. THE LIFE AND TEACHINGS OF JESUS. (3) Prerequisite: Religion 202. A study of the Gospels for an understanding of the life of Jesus and the religion he taught.

303. THE HEBREW PROPHETS. (3) Prerequisite: Religion 201. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth and sixth centuries B.C. Emphasis will be placed on the contributions of the prophets to their own day as their significance for religious thought today.

405. THEOLOGY AND CONTEMPORARY LITERATURE. (3) Prerequisite: Open to seniors only with the consent of the department. A discussion of the theological issues raised by contemporary writers—both Christian and non-Christian. Consideration will be given to the writings of such authors as Camus, Eliot, Greene, Miller, Salinger, Steinbeck, and others.

406. RELIGION IN AMERICAN LIFE. (3) Prerequisite: Junior standing and the consent of the instructor. An inquiry into the role religion has played in the development of American life with particular emphasis on the late nineteenth and twentieth centuries.

SOCIOLOGY

Professor Harlan

A major in sociology leading to the B.A. degree consists of 27 semester hours of sociology, including Soc. 201 (General Sociology), Soc. 401 (Sociological Theory), Soc. 410 (Research Methods in Social Science), and Soc. 491 (Seminar for Majors in Sociology). Related work consists of 21 semester hours in any two of the following fields: economics, history, mathematics, political science, psychology. Math. 221, 222 (Introduction to Probability and Statistics I, II) are required of majors in sociology.

201. GENERAL SOCIOLOGY. (3) Survey of the field of sociology to cover such topics as: social norms and values, status and role, social stratification, socialization, crowds and publics, formal and informal groups, urban communities, population, social institutions.

203. GENERAL ANTHROPOLOGY. (3) Survey of the field of anthropology: physical anthropology, prehistoric archeology, ethnology, culture theory.

302. SOCIAL PROBLEMS. (3) Prerequisite: Sociology 201. Sociological analysis of crime and delinquency, alcoholism, drug addiction, mental disorders, race relations, and problems of population.

303. SOCIOLOGY OF THE FAMILY. (3) Prerequisite: Sociology 201. Analysis of the structure and functioning of the American family and of such related institutional patterns as dating, courtship, marriage, and divorce.

310. AMERICAN MINORITY GROUPS. (3) Prerequisite: Sociology 201. Sociological analysis of the relations between minority and dominant groups in America, with special attention paid

to such American minorities as immigrant groups, Mexicans, Puerto Ricans, Orientals, Catholics, Jews, Indians, and Negroes.

320. URBAN SOCIOLOGY. (3) Prerequisite: Sociology 201. Origin and development of cities; ecological and social structure of city and region; nature and functioning of urban institutions.

323. COMMUNITY ORGANIZATION OF SOCIAL SERVICES. (3) Analysis of the organization of agencies and services for welfare, health, recreation, and other social needs in American communities.

401. SOCIOLOGY THEORY. (3) Prerequisite: Sociology 201. Background and contemporary expression of systematic theories of social organization, social differentiation, social change, and other social phenomena.

410. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Sociology 201, Math 222. Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data.

491. SEMINAR FOR MAJORS IN SOCIOLOGY. (3) Prerequisite: Permission of department. Independent study, small group discussion and critique.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology (see p. 110-113) or (2) major in sociology with related work in psychology. Whichever major is chosen, care should be taken to include the following courses: Psychology 305 (Theory of Personality Development), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

GIFT
SETS

V. FACILITIES AND SERVICES

LIBRARY FACILITIES

By providing books, periodicals, pamphlets, recordings, and other resources for the use of the student, the library contributes toward attainment of the University's aim of supplying opportunities for enriched personal living, cultural development, responsible citizenship, and vocational preparation.

The J. Murrey Atkins Library has an open shelf collection of approximately 65,000 catalogued volumes. Some 1,200 journals are subscribed to on a continuing basis. Named a depository for government documents in 1964, the library receives each year thousands of publications printed at the Government Printing Office. Back files of the New York Times and other important newspapers are being added on microfilm. A special collection of "Caroliniana" now totals 2,500 volumes.

The first floor of the library contains the major portion of the book collection, the reference and circulation activities, and a central service core of offices and work areas. The east wing of the second floor is devoted to periodicals, government documents, and other serial publications. Seminar rooms, study areas, and a Special Collections Room complete the second level. Exhibits are frequently presented in lobby areas.

Research materials may also be obtained from other libraries through inter-library loan.

THE UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program. The Union provides for the services, conveniences, and amenities the members of the University family need in their daily life on the campus and for getting to know and understand one another through informal association outside the classroom.

The Union is part of the educational program of the University. It serves as a laboratory of citizenship, training students in social responsibility and for leadership in our democracy. Through its various boards, committees, and staff it provides a cultural, social, and recreational program, aiming to make free time activity a cooperative factor with study in education.

The Union Building houses the book store, cafeteria, games room, lounge-gallery area, a large multi-purpose room with facilities for dances, lectures, films, and banquets, meeting rooms, offices of student government and major publications, hobby shops, and an information center.

TRANSPORTATION

Charlotte City Coach Lines provides bus transportation from Charlotte to the campus on a regular schedule, connecting with established routes. Detailed information regarding routes, times and fares may be obtained from the main office of the Charlotte City Coach Lines or at the University Union Information Center. Weekly passes may be purchased at either location.

DINING FACILITIES

The cafeteria in the Union building serves meals and snacks from 7:30 a.m. to 7:00 p.m., Monday through Thursday, and from 7:30 a.m. to 5:00 p.m. on Friday.

COUNSELING AND TESTING

Each student entering the University is assigned a faculty advisor, who is usually in the department of the student's major. The advisor is available to assist the student in planning his academic program and approve the courses to be taken each semester. The Dean, the department heads, the Director of Admissions and Registration, and the Staff in the Office of Student Affairs are also available to provide the student with information on curricula and to aid him in the selection of a major. However, the ultimate responsibility for the selection of courses and compliance with the University requirements for a degree rests with the student.

Students may consult the Staff in the Office of Student Affairs regarding the choice of a vocation, the selection of curricula, and problems of finance and personal adjustment. Information is available on aptitude and interest tests.

EDUCATION FOR THE VOCATIONALLY HANDICAPPED

Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance, medical treatment and placement, and training or scholarships which cover the costs of training. Payment of University expenses such as books, fees and tuition may be available. All the services are available at no cost to the individual who qualifies.

A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by telephoning the Vocational Rehabilitation Office, located in Room 206, 517 Insurance Lane, at 375-8686.

PLACEMENT AND EMPLOYMENT SERVICE

The Placement Service for graduates is centered in the Office of Student Affairs. This Office maintains information on positions available for graduates and arranges for interviews between prospective graduates and employers during the spring semester. The Office seeks to develop personal data for each prospective graduate during his senior year and maintains a set of credentials which the graduate may have sent to prospective employers over the years. Although this Office coordinates the placement work involving prospective teachers, the members of the Department of Education are primarily responsible for the placement of teachers.

The Office of Student Affairs assist the student in locating work during his undergraduate years as part of the program of financial assistance. Often the referral to a part-time position is coupled with scholarship or loan assistance to meet the financial need of a student.

VI. ACTIVITIES

STUDENT ACTIVITIES

STUDENT GOVERNMENT

The University desires to encourage and to develop self-government of its students. The Student Government Association was organized in 1946, the first year of the Charlotte College Center, and has continued to function since that time.

The Student Legislature is composed of the president, vice-president, secretary, and treasurer of the Student Government Association, and the president, vice-president, and four representatives of each of the four classes (freshman, sophomore, junior and senior). The functions of these officers include serving students in every possible way, forming committees vital to the Student Government program, and assisting in the formulation of University policies, with the help of the students and faculty.

It is expected that students will at all times obey the rules and regulations of the University and the regulations of the Student Legislature. The Student Court is established for the purpose of judging violations of these rules and regulations, including making recommendations to the University Administration when this is appropriate. It is through the Student Court that students exercise the privilege of policing themselves.

It is the Student Court which administers the Honor Code. This Code, adopted by the Student Body during the Fall Semester, 1965, reads as follows:

> "Under the Honor Code you are on your honor not to cheat, lie, or steal; and if you see another student doing so you are on your honor to report the individual and the circumstances to the appropriate student agency."

ATHLETICS

The intercollegiate athletic program consists of competition in basketball, golf, tennis and bowling within the framework of the Dixie Intercollegiate Athletic Conference of which Charlotte College was a charter member. A full schedule of games with other members of the Conference (associated with the National Association of Intercollegiate Athletics) and other four-year institutions throughout the state is played by the University of North Carolina at Charlotte Forty-niners. Additional sports will be added to the program as facilities and staff become available.

RECREATION

An intramural program of activities will be developed as facilities become available on campus.

A full program of recreation and entertainment is sponsored

by the University Union. This program includes formal and informal dances, coffee hours, movies, picnics, receptions, game nights, and concerts by popular artists. The University Union building, opened in 1963, serves as the center for these programs as well as for the educational-cultural activities planned by the Union.

PUBLICATIONS

LITERARY MAGAZINE

The Parnassian, a literary magazine, is published by the members of the Literary Club. This publication was first issued in the spring of 1957 and has as its aim the promotion of interest in good writing. The broad scope of subject matter gives an interesting presentation of student opinion and sentiment.

NEWSPAPER

To provide information for all persons interested in the University, the students publish a newspaper, *The Carolina Journal.* The purposes of the newspaper are to create a wholesome school spirit, to support the best traditions of the institution which it represents, to encourage worthy university activities, to promote scholarship, to encourage the ideals of true sportsmanship, and to record the history of the University.

YEARBOOK

The University's yearbook, *Si Si,* was first published in the spring of 1950. Since then it has greatly increased in size and student interest. The purpose of the yearbook is to present a written and pictorial record of each university year. This publication is supported through advertisements and the General Fee. The yearbook is provided free to all students taking seven or more semester hours of work each semester during the academic year. Students taking six or fewer semester hours of work each semester during the academic year may obtain a yearbook upon payment of $5.00.

ORGANIZATIONS

ACADEMIC

The purpose of the *University Chapter of the Student National Education Association,* which is affiliated with the North Carolina Education Association, is to inform students of the possibilities offered in the field of education, to encourage qualified students to become teachers, and to provide students with an opportunity to discuss educational issues and problems.

The Engineers' Club was formed in the fall of 1960 to give

the student engineer a greater understanding of all phases of engineering. Through the assistance of the Charlotte Engineers' Club, examples of emerging engineering theory are presented in the form of practical applications.

The *Collegiate Council for the United Nations* seeks through discussion groups and inter-campus meetings to gain an understanding of the activities of the United Nations and of the problems facing its member nations. Its broader purpose is to encourage student interest in international affairs.

Its membership is open to all students, and foreign students are particularly urged to take part in the activities of the Council.

Chez les Francais, the French Club, is open to all students interested in the language, customs and culture of the French people. Social and educational meetings are held for the purpose of broadening the members' knowledge of French civilization and increasing their conversational ability in the French language.

El Club Espanol is open to students interested in fellowship and conversation in Spanish. The meetings are informal and are usually conducted in both Spanish and English. Frequently Spanish speaking guests talk to members of the club about the Hispanic countries. The students also participate in the presentation of plays, songs, dances, and films.

The Chemical Society is open to students with a deep interest in chemistry and is designed to afford opportunity for members to become better acquainted, to secure the intellectual stimulation that arises from professional association and to instill a professional pride in chemistry and chemical engineering.

The Business Club is open to students majoring in business who have completed their freshman year. Purposes include increasing knowledge and interest in the practical application of business practices, gaining insight into the business world, and stimulating fellowship among members through mutual help and social activities.

HONORARY

Phi Theta Kappa is a national honorary scholastic society. Its object is to promote scholarship, to develop character, and to cultivate fellowship among students. The University chapter, *Iota Lambda,* was established in May, 1957. Students who display good moral character and, at the time of election, are within the scholastic upper ten per cent of the regularly enrolled student body are normally eligible for membership.

Sigma Tau Sigma is the national honorary fraternity recognizing excellence in social science. The University chapter, *Alpha,*

was established in May, 1957, and is open to students displaying interest and achievement in the social sciences.

SERVICE

Circle K is a men's service organization that seeks to develop activities that will be of significant value to the university. Students may ask to join Circle K or they may be asked by other Circle K members to become affiliated. The University Chapter is sponsored by the Mecklenburg Kiwanis Club.

Alpha Phi Omega, a national service fraternity, is open to men students with past experience in scouting, YMCA, and other service organizations of this nature. Its purposes are to develop leadership, to promote friendship, and to provide service to chapter, campus, community and country.

LITERARY

The Literary Club has as its purpose the discovering and developing of talent sufficient to provide a genuine support toward the production of a literary magazine. Students showing an interest in writing are invited to become members of the Writers' Club.

DEBATING

The Forensic Society has as its purpose the developing of talent for debating. Members engage in intra-club as well as inter-collegiate debates. The members are coached, and the debates are judged by faculty members.

MUSICAL

The University Chorus, which was re-organized in 1956, has added much to the atmosphere of the school. The members of this group meet weekly with a dual purpose of enjoying singing together and improving their musical abilities. The Chorus furnishes musical programs for special events during the year. One semester hour of credit may be earned for each semester of participation. Only four semester hours may be credited toward a degree.

ADVISORY

The Freshman Advisory Committee has a dual purpose: to orient new students in the way of the University and to assist the faculty during registration. More than one hundred students are selected by the Student Legislature to serve on this committee.

POLITICAL

The *Young Democrat Club* and the *Young Republican Club* give the student an opportunity to engage in practical politics as well as to hear speakers from local, state, and national levels of our political parties. Membership is open to all interested students.

The Student Party and *The University Party* are organized to promote student interest and participation in campus politics, including endorsement of candidates for campus elective offices and their platforms. Any student may join either, but not both, of the parties.

VII. BENEFACTIONS

PROFESSORSHIP

The Robert Lee Bailey Professorship in history was established in December 1965 by a gift in memory of Lieutenant Robert Lee Bailey of the 10th Armored Division of the U. S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College, and before the war was associated with Broyhill Furniture Company. Yearly additions will be made to the original gift.

GIFTS FOR FACULTY SALARY SUPPLEMENTS

The Celanese Corporation of America and the Celanese Fibers Company presented a gift in July, 1963, of a manufacturing plant at Burlington, North Carolina, valued at $1,150,000. The income derived from the rental of this plant is used to supplement the salaries of members of the faculty who teach chemistry, engineering, mathematics, physics and related subjects.

North Carolina National Bank gives annual grants to be used to supplement salaries in economics and business administration.

VIII. DIRECTORY

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By the act of the General Assembly of 1931 the University of North Carolina at Chapel Hill, the North Carolina College for Women at Greensboro (renamed The Woman's College of the University of North Carolina), and the North Carolina State College of Agriculture and Engineering at Raleigh were consolidated into The University of North Carolina.

By the act of the General Assembly of 1963, amended in 1965, The University of North Carolina comprises: The University of North Carolina at Chapel Hill, The University of North Carolina at Charlotte, The University of North Carolina at Greensboro, and North Carolina State University at Raleigh.

Each campus of the University has its own faculty and student body, and each is headed by a chancellor as its chief administrative officer. Unified general policy and appropriate allocation of function are effected by a single Board of Trustees and by the President with other administrative officers of the University. Administrative offices are located in Chapel Hill.

Members of the Board of Trustees are elected by the Legislature, and the Governor of North Carolina is chairman ex officio. A current list of members of the Board of Trustees is given below.

The chancellor of each component institution is responsible to the President as the principal executive officer of The University of North Carolina.

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B.S., M.S., Marshall University

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B.A., Queen's University, Belfast, North Ireland; M.A., University of North Carolina

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B.S., Anderson College; M.A., DePauw University; Ph.D., Duke University

Lloyd Dale Davis, *Instructor in Mathematics*
A.B., Ohio Northern University; M.S., University of Miami

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B.A., University of Rhode Island; M.A., The Pennsylvania State University

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A.B., Marshall College; M.A., George Peabody College for Teachers

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A.B., University of Delaware; A.M., University of Missouri; Ph.D., University of Southern California

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B.S., Southwestern at Memphis; M.A., University of Virginia; Ph.D., University of North Carolina

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A.B., Winthrop College; A.M., Columbia University
* Deceased December 22, 1965

Ann Tucker Foster, *Instructor in English*
B.A., Florida State University; M.A., Vanderbilt University

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B.A., DePauw University; M.A., University of Minnesota

Harriette Joanne Fuhrman, *Instructor in English*
B.A., Maryville College; M.A., University of North Carolina

Karl Michael Gabriel, *Assistant Professor of German*
Ph.D., University of Vienna, Austria

Maud Florance Gatewood, *Instructor in Art*
A.B., Woman's College of The University of North Carolina; M.A., Ohio State University

Clare Henry Gibbs, *Instructor in Geography and Geology*
B.S., Syracuse University; M.S., University of Tennessee

Robert Harry Gibson, *Assistant Professor of Chemistry*
A.B., Erskine College; M.A., Ph.D., Columbia University

Edwin Shirley Godsey, *Associate Professor of English*
B.A., M.A., Vanderbilt University; Ph.D., Yale University

Cloyd Smith Goodrum, Jr., [1]*Professor of Mathematics*
B.A.E., Rensselaer Polytechnic Institute; M.A., University of North Carolina

Ben Hall Hackney, Jr., *Assistant Professor of Education*
A.B., Duke University; M.Ed., D.Ed., University of North Carolina

John O. P. Hall, *Professor of History*
B.S., University of New Hampshire; Ph.D., Columbia University

Howard Harper Harlan, *Professor of Sociology*
A.B., University of Richmond; A.M., Ph.D., University of Virginia

[1] Absent on leave 1965-66

Marilyn Hatch, *Instructor in Biology*
B.S., Longwood College; M.A., Indiana University

Herbert Hechenbleikner, *Chairman, Department of Biology and Professor of Biology*
A.B., University of North Carolina; M.A., Ph.D., Harvard University

David Guy Herr, *Instructor in Mathematics*
B.S.E.E., M.S., Georgia Institute of Technology

Harper Thomas Higgins, Jr., *Assistant Professor of Business Education and Business Administration*
B.S., Presbyterian College; M.Ed., University of North Carolina

Frances Bobbitt Hoyle, *Associate Professor of Spanish*
A.B., The Woman's College of The University of North Carolina; M.A., New York University

Rhyn Hyun Kim, *Assistant Professor of Mechanical Engineering*
B.S.M.E., Seoul National University; M.S.M.E., Ph.D., Michigan State University

Dorothy Aycock Kirby, *Instructor in Biology*
A.B., Atlantic Christian College; M.A., University of North Carolina

James Richard Kuppers, *Associate Professor of Chemistry*
B.S., University of Florida; M.S., Louisiana State University; Ph.D., University of Florida

Martha Eugenia Lawrence, *Assistant Professor of Mathematics*
A.B., Winthrop College; A.M., Duke University

David Hallam Littlejohn, *Assistant Professor of Spanish*
A.B., A.M., University of North Carolina

Victor M. Lopez, *Assistant Professor of Spanish*
B.A., Hobart College; M.A., Cornell University

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Eleanor Mallory Markham, *Associate Professor of Mathematics*
A.B., A.M., Duke University

James Ronald Marshall, *Instructor in Mathematics*
B.S., Appalachian State Teachers College; M.Ed., University of North Carolina

James Francis Matthews, *Assistant Professor of Biology*
A.B., Atlantic Christian College; M.S., Cornell University; Ph.D., Emory University

Joseph Darryl McCall, Jr., *Associate Professor of English*
A.B., M.A., Ph.D., University of Florida

Edward Fulton Menhinick, *Assistant Professor of Biology*
B.A., Emory University; M.S., Cornell University; Ph.D., University of Georgia

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B.A., University of North Carolina; B.A., M.A., Oxford University, Oxford, England; Ph.D., University of North Carolina

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B.A., Wake Forest College; M.A., Emory University

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B.S., M.S., North Carolina State College

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B.S., Troy State College; M.A., Columbia University

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B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

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B.S., Case Institute of Technology; M.S., Ph.D., University of Tennessee

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A.B., Erskine College; M.A., University of North Carolina

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A.B., M.A., University of Miami

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B.A., New York University; M.A., Ph.D., Tulane University

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B.S., Mississippi College; Ph.D., University of North Carolina

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B.A., Brooklyn College; Ph.D., University of Texas

Alva Ware Stewart, *Reference Librarian*
B.A., M.S.L.S., University of North Carolina; M.A., Duke University

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B.A., Agnes Scott College; M.A., University of North Carolina

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THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE 1966-67

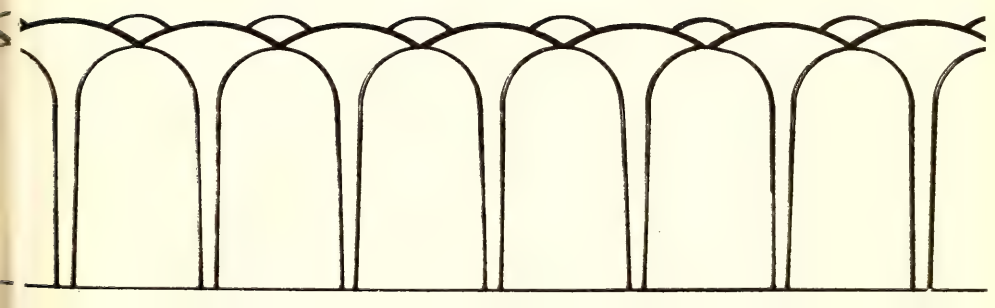
THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE
1967-1968

March, 1967 Number 3

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

CATALOGUE
1967-68



Mailing Address:

The University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

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I. THE UNIVERSITY

PURPOSE

The purpose of the total University of North Carolina is defined by General Statute 116 as follows:

> "The University of North Carolina shall provide instruction in the liberal arts, fine arts, and sciences, and in the learned professions, including teaching, these being defined as those professions which rest upon advanced knowledge in in the liberal arts and sciences; and shall be the primary State-supported agency for research in the liberal arts and sciences, pure and applied. The University shall provide instruction in the branches of learning relating to agriculture and the mechanic arts, and to other scientific and to classical studies. The University shall be the only institution in the State system of higher education authorized to award the doctor's degree. The University shall extend its influence and usefulness as far as possible to the persons of the State who are unable to avail themselves of its advantages as resident students, by extension courses, by lectures, and by such other means as may seem to them most effective."

The purpose of the University of North Carolina at Charlotte is more specifically outlined in guidelines approved by the University Trustees on May 23, 1966. Those guidelines say that subject to existing University procedures for approval of budgets and academic programs, the University of North Carolina at Charlotte "may provide graduate and undergraduate instruction and research opportunities in the basic natural sciences, the social sciences, the humanities, the fine arts and teacher education."

In the development of advanced graduate work the University of North Carolina at Charlotte and the other campuses of the University are to seek to emphasize, insofar as practicable, different areas of the disciplines, thus enlarging and enriching educational opportunities of the University.

The University of North Carolina at Charlotte is now authorized to award the degrees of bachelor of arts, bachelor of science, and bachelor of science in engineering. Graduate work is offered on the Charlotte campus in cooperation with the University of North Carolina at Chapel Hill, credit being given by that institution and teaching staff being furnished by both institutions.

A college of arts and sciences has been authorized for the University of North Carolina at Charlotte, leaving the departments of economics and business administration, engineering and nursing to develop independently.

Thus it is the initial objective of the Charlotte Campus to provide undergraduate programs with standards comparable to those on the other campuses and thereby lay the foundation for graduate and professional programs as rapidly as resources become available.

HISTORY

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The University of North Carolina at Charlotte came into being on July 1, 1965 as the result of legislation ratified by the 1965 General Assembly on March 3 making Charlotte College the fourth campus of the University.

The movement which led to the suggestion that the University expand to an additional campus began with the creation of the Governor's Commission on Education Beyond the High School in September 1961. One of the questions studied by the Commission was whether the need for higher education facilities in the more populous areas should be met by establishing additional campuses of the University in those areas. The President of the University referred a request from a joint subcommittee of the Governor's Commission on Education Beyond the High School to the Executive Committee of the Board of Trustees at its meeting on June 15, 1962 for an expression of its views respecting the recommendation of the Board of Trustees of Charlotte College that a fourth campus of the University of North Carolina be established at that institution. The Executive Committee asked the Chairman of the University Board to appoint a committee composed of trustees to study the proposal. A special committee was named by the Governor on July 23, 1962.

In accordance with the recommendations of both the Governor's Commission on Education Beyond the High School and the Board of Trustees of the University, the General Assembly of 1963 in the "Act to Promote and Encourage Education Beyond the High School in North Carolina" adopted a procedure for the expansion of the University.

The Executive Committee of the Board of Trustees on July 8, 1963 designated Mecklenburg County and its surrounding area as the first to be studied under the procedure outlined in the 1963 statute. Following the authorization of the study, the President of the University established the Advisory Council on Educational Policy composed of the vice presidents, the chancellors, and twelve professors from

the three then existing campuses. The Committee was first consulted concerning the study on January 28, 1964. It visited Charlotte College on February 12 and was kept informed as the study progressed. On November 16, 1964, the following conclusions, which had the endorsement of the Committee, were reported to the Board of Trustees:

1. The University of North Carolina should develop an additional campus as soon as adequate funds for this purpose are appropriated by the General Assembly.
2. The additional campus should be located in Mecklenburg County.
3. Charlotte College should be merged with the University of North Carolina and reorganized as the fourth campus of the University.

The Trustees on the same date passed a resolution making Charlotte College the fourth campus of the University subject to the approval of the North Carolina Board of Higher Education, which was received on January 15, 1965, and the action of the General Assembly, which followed on March 3, 1965.

Charlotte College had its inception in the aftermath of World War II when the Charlotte Center of the University of North Carolina was established to provide instruction for returning veterans. In 1949, following the emergency, the University planned to close the Center. The Charlotte Board of School Commissioners, however, saw a continued need for such an institution and took steps to establish a permanent college. The 1949 General Assembly passed a bill authorizing that Board to administer the College as part of the school system. In 1958 the College officially came under the North Carolina Community College System.

The voters of Charlotte and Mecklenburg County went to the polls on four occasions to vote upon themselves taxes for the support of the institution.

A 270-acre campus eight miles from the center of Charlotte on Highway 49 was purchased on February 4, 1959, as a permanent site for the College which had begun in borrowed space in Central High School. In the fall of 1961, the College moved to the new campus.

In May 1963 the General Assembly of North Carolina

changed the status of Charlotte College to that of a senior college fully supported by the State. The campus was expanded from the original 270 acres to 897 acres by the gift of approximately 500 acres by the Mecklenburg County Commissioners for the citizens of the county in the spring of 1964, supplemented by 127 acres purchased by the State of North Carolina in 1963.

Charlotte College awarded its first and only baccalaureate degrees on June 6, 1965. The University of North Carolina at Charlotte awarded its first baccalaureate degrees on May 29, 1966.

Dr. D. W. Colvard was elected the first Chancellor of the Charlotte campus on January 28, 1966.

ACCREDITATION AND MEMBERSHIP

The procedure required by the Southern Association of Colleges and Schools for accreditation as a senior institution will be completed for the University of North Carolina at Charlotte in the spring of 1967 with an inspection by a visiting committee. Accreditation is expected in December, 1967 retroactive to 1965, the date of the first graduating class.

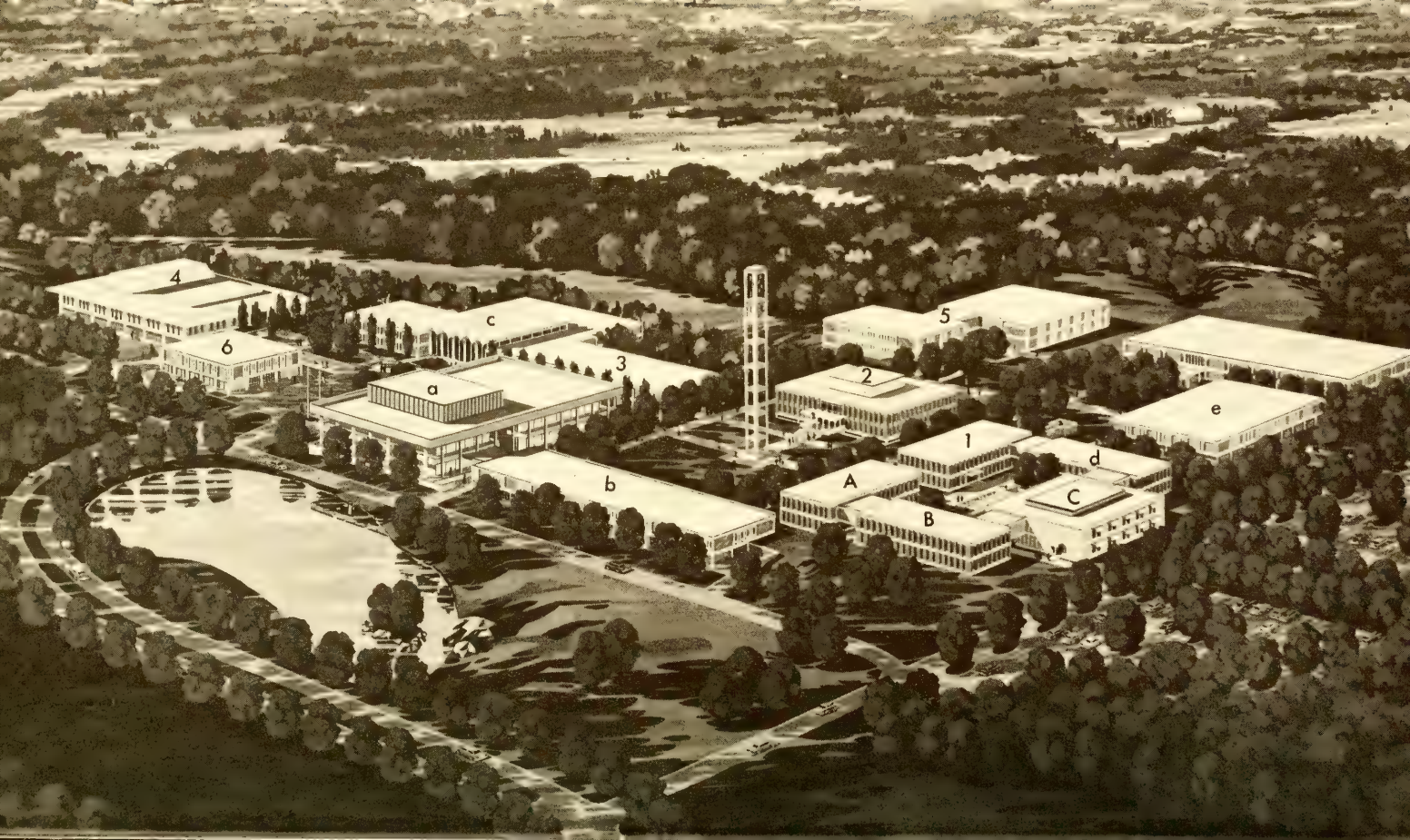
In the meantime, other universities in North Carolina are considering graduates of the Charlotte campus for admission on the same basis as graduates of accredited institutions. Furthermore, representative senior colleges in North Carolina are also accepting qualified students of the University of North Carolina at Charlotte who wish to transfer before graduation.

The institution retained its accreditation by the Southern Association as a junior college when it became a four-year college. The University of North Carolina at Charlotte is at present accredited as a senior college by the North Carolina Association of Colleges and Universities.

LOCATION

The University of North Carolina at Charlotte is located on an 897-acre campus eight miles from downtown Charlotte on Highway 49 near its intersection with Highway 29

northeast of Charlotte. With a population of 258,000, Charlotte, in Mecklenburg County (population 333,000), North Carolina, serves as a center of commerce, industry, and culture of a twenty-four county area.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UNIVERSITY BUILDINGS

Buildings Now in Use:

A—Building A (Liberal Arts)

B—Building B (Liberal Arts)

C—Building C (Liberal Arts)

1—Liberal Arts (Foreign Languages)

2—W. A. Kennedy Building (Science)

3—J. Murrey Atkins Library

4—University Union

5—Engineering-Mathematics-Computer

6—Administration

Buildings for Which Funds Are Available:

d—Building D (Liberal Arts)

Field House (Not Shown)

Future Buildings:
(Requested of 1967 General Assembly)*

a—Auditorium

b—Fine Arts

c—Main Wing of Library

e—Science Building

* Other buildings requested but not shown are a health and physical education building, two dormitories and a cafeteria.

1967

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SCHEDULE OF CLASSES

Day classes are scheduled normally from 8:30 a.m. until 5:30 p.m., Monday through Friday.

Evening classes are scheduled from 6:00 p.m. until 10:30 p.m., Monday through Thursday.

ACADEMIC CALENDAR, 1967-1968

The Academic Calendar consists of two semesters (Fall and Spring) and a summer session (First and Second Term). The word semester used in this catalogue refers to the Fall and Spring semesters only.

FALL SEMESTER

September 6-8	Wednesday-Friday	Orientation, advising and registration (Schedule to be furnished by Office of Records and Registration)
September 6	Wednesday	Faculty Meeting
September 10	Sunday	Open House for faculty, entering students and their parents
September 11	Monday	Classes begin
September 15	Friday	Last day to add courses for credit
September 22	Friday	Last day to withdraw (or drop a course) with refund
October 6	Friday	Last day to drop courses without grade evaluation
October 30	Monday	Reports of unsatisfactory grades by faculty
November 21	Tuesday	Last day of classes before Thanksgiving holidays
November 27	Monday	Classes resume
November 30	Thursday	Last day to file degree applications for May 26, 1968, commencement
December 4-7	Monday-Thursday	Preregistration for Spring Semester 1968
December 19	Tuesday	Last day of classes before Christmas holidays
January 3	Wednesday	Classes resume
January 10	Wednesday	Last day of classes
January 11	Thursday	Reading Period
January 12	Friday	Final examinations begin
January 19	Friday	Final examinations end

SPRING SEMESTER

January 24-26	Wednesday-Friday	Orientation, advising and registration (Schedule to be furnished by Office of Records and Registration)
January 29	Monday	Classes begin
January 29-30	Monday-Tuesday	Graduate Record Examination (required of all seniors)
February 2	Friday	Last day to add courses for credit

February 9	Friday	Last day to withdraw (or drop a course) with refund
February 23	Friday	Last day to drop courses without grade evaluation
March 18	Monday	Reports of unsatisfactory grades by faculty
April 11	Thursday	Last day of classes before Easter Vacation
April 17	Wednesday	Classes resume
April 29-May 2	Monday-Thursday	Preregistration for Summer Session and Fall 1968
May 15	Wednesday	Last day of classes
May 16	Thursday	Reading Period
May 17	Friday	Final Examinations begin
May 24	Friday	Final examinations end
May 26	Sunday	Commencement

PREREGISTRATION FOR NEW STUDENTS, FALL 1968

July 8-10	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1968
August 12-14	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1968

SUMMER SESSION, 1968

First Term

June 3-4	Monday-Tuesday	Advising and registration (Schedule to be furnished by Office of Records and Registration)
June 5	Wednesday	First day of classes
June 7	Friday	Last day for registration and last day to withdraw (or drop a course) with refund
June 11	Tuesday	Last day to drop courses without grade evaluation
July 4	Thursday	Holiday
July 8-10	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1968
July 10	Wednesday	Last day of classes
July 11-12	Thursday-Friday	Final examinations

Second Term

July 15	Monday	Advising and registration (Schedule to be furnished by Office of Records and Registration)
July 16	Tuesday	First day of classes
July 18	Thursday	Last day of registration and last day to withdraw (or drop a course) with refund
July 22	Monday	Last day to drop courses without grade evaluation
August 12-14	Monday-Wednesday	Preregistration for new students entering in the Fall Semester 1968
August 19	Monday	Last day of classes
August 20-21	Tuesday-Wednesday	Final examinations

II. ADMISSIONS AND ACADEMIC REGULATIONS

ADMISSIONS AND ACADEMIC REGULATIONS

REQUIREMENTS FOR ADMISSION

GENERAL ADMISSION REQUIREMENTS

1. Satisfactory evidence of good character.
2. Evidence of good physical and mental health.
3. Application fee of $10.00. (See page 33.)
4. Satisfactory record of scholastic achievement.
5. Additional requirements according to the type and level of admission as indicated below:

ADMISSION TO FRESHMAN STANDING

1. Applicants must present a record of graduation from an accredited high school or preparatory school. The form for the secondary school record which is sent to each applicant with his application blank must be executed and returned to the Office of Admissions by the high school principal or counselor.
2. Applicants must present sixteen acceptable units, as required by the degree program for which he applies. Only three of these sixteen units may be in nonacademic or vocational subjects, such as home economics, agriculture, shorthand, typewriting, or bookkeeping.
3. Satisfactory scores on the Scholastic Aptitude Tests of the College Entrance Examination Board. Each applicant for admission to the freshman class is required to take and make satisfactory scores on the Scholastic Aptitude Tests and to have the Educational Testing Service send the official examination score reports directly to the Director of Admissions. A high school senior applying to the University must take the Scholastic Aptitude Tests during his senior year, preferably in December or January.
4. The principal or counselor of the secondary school must furnish a satisfactory recommendation. Personal data is to be submitted directly to the Office of Admissions by the principal or counselor on the application form which is sent each applicant.
5. Application fee of $10.00. See page 33.

ADMISSION OF OUT-OF-STATE STUDENTS

The number of entering undergraduate students that may be admitted to the University from outside the state in any semester is limited to 15 per cent of the undergraduate students admitted during the semester.

Out-of-state students who are children of alumni of the University are expressly exempt from this limitation with the proviso that they may be required to pay the regular out-of-state tuition.

ADMISSION OF TRANSFER STUDENTS

TRANSFER FROM COLLEGE OR UNIVERSITY

1. An official transcript of record from each college or institution beyond the high school attended, showing honorable dismissal, should be sent directly to the Director of Admissions. Also recommendations should be sent from all institutions previously attended.
2. To be admitted as a non-freshman transfer student the applicant must have acquired sufficient credits at an accredited institution to have the equivalent of sophomore standing at The University of North Carolina at Charlotte. In no case shall less than 24 semester hours be considered the equivalent of sophomore standing.
3. To be admitted with transfer credit:
   a. An applicant must have a "C" average (2.0 based on an A grade being equated at 4 points according to our method of computation) or better on all the courses taken at institutions attended.
   b. An applicant must have at least a "C" grade average on all courses that are acceptable for evaluation.
   c. Only courses with a grade of "C" or better may be accepted for transfer credit.
4. Transfer students may be accepted as freshmen only when (1) they meet all entrance requirements of freshmen including satisfactory scores on the scholastic aptitude test of CEEB and (2) meet the conditions in 3. (a), (b) and (c) above.
5. Applicants may be asked to take special tests as a condition of admission.
6. No exceptions shall be made without the approval of the

faculty admissions committee of the University of North Carolina at Charlotte.

TRANSFER WITHIN THE CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

Transfer applicants from other campuses of the consolidated University of North Carolina are considered for admission on the basis of different qualitative academic requirements.

TRANSFER FROM JUNIOR COLLEGE

Transfer students entering the University after attending a junior college will receive no more than 66 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Arts degree and no more than 70 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Science and Bachelor of Science in Engineering degrees.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Prescribed courses for admission to candidacy for the degree of Bachelor of Arts or Bachelor of Science are:

English	4 units	Natural Science	1 unit[3]
Mathematics	2½ units[1]	Electives	4½ units
Foreign Language	2 units[2]		
United States History and Social Science	2 units	(Total)	16 units

[1] The 2½ units of Mathematics must include 1 unit of Plane Geometry or the equivalent in integrated courses.
[2] Two units in the same Foreign Language are required.
[3] The Natural Science presented must represent one year with laboratory.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Prescribed courses for admission to candidacy for the degree of Bachelor of Science in Engineering are:

English	4 units	Natural Science	1 to 2 units
United States History and Social Science	1 to 2 units	Electives	3½ to 7½ units
Mathematics	3 units[1]	(Total)	16 units

[1] The 3 units of Mathematics must include:

Algebra	1½ units
Plane and solid Geometry	1 unit
Trigonometry	½ unit

or the equivalent of these in integrated courses.

Engineering students are required to have at least 450 on the Mathematics portion of the Scholastic Aptitude Test or a satisfactory score on a locally administered Mathematics examination.

DEFICIENCIES IN ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF SCIENCE, OR BACHELOR OF SCIENCE IN ENGINEERING

Admission with deficiencies in Mathematics and in Foreign Language may be granted to applicants whose records are otherwise acceptable.

Removal of deficiencies before registration for the first semester is desirable, but all deficiencies must be removed before registration for the third semester.

See Part III, *Degrees,* for Foreign Language requirements.

ADMISSION OF UNCLASSIFIED STUDENTS

An unclassified student is one who is earning University credit, but is not working toward the completion of a degree program at the University.

Students in this category must meet the same entrance requirements as regular students in order to earn University credits. As a rule, unclassified students must have the approval of the head of the department in which the courses are to be taken, to register for these courses.

Such students must abide by the same regulations as regular students. If, at a later date, an unclassified student changes to regular status, the credits earned while he was unclassified will be accepted only if he has satisfactorily completed the proper prerequisites.

ADMISSION OF SPECIAL STUDENTS

Students who do not wish to earn degree credit because of special reasons may enroll as special students. As a general rule, special students must meet the same admission requirements as degree students and regular rules of scholarship apply to them.

ADMISSION OF SPECIAL STUDENTS IN TEACHER EDUCATION

Students who hold a bachelor's degree and plan to work toward a teaching certificate or certificate renewal must meet the standards set by the University for admission as well as the requirements of the Department of Education. Students should consult with the Chairman of the Department of Education for further details. See page 73.

REGISTRATION FOR AUDITORS

Any student eligible for admission may register for any class for audit. The fees are the same as for classes taken for University credit.

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit. They are, however, expected to attend class regularly. Notation of an audited class on the student's permanent record is made, but no grade will be given.

Adding or dropping an audit course is governed by the same procedures as adding or dropping a course for credit, and is processed in the same way through the Registrar's Office.

EXCEPTIONS TO ADMISSION REQUIREMENTS

Exceptions to admissions requirements are made only by the Committee on Admissions of the University.

VETERANS AND WAR ORPHANS EDUCATION

The University provides educational opportunities for veterans, war orphans, and children of totally disabled service-connected veterans. Veterans seeking training under the provisions of Public Laws 894 and 87-815 (Veterans Vocational Rehabilitation Program), Public Law 358 (Veteran's Readjustment Benefits Act of 1966), and war orphans seeking training under Public Law 634 (War Orphans Educational Assistance Act of 1956), and children of totally disabled service-connected veterans desiring

benefits of Public Law 88-361 (extension of War Orphans Educational Assistance Act) must enroll for a minimum of 14 semester hours in order to receive full subsistence. Routines involving letters of eligibility, interruption of training, and the like are handled by the University through the Registrar's Office. Technical questions are referred to Mecklenburg County Veterans Service Office, 123 North Poplar Street, Charlotte; telephone number 333-8616.

Before the time of registration, each veteran or war orphan who wishes to enter the University should:

1. Make application for admission according to the procedure described on pages 16 to 20 of the catalogue. Forward to the Registrar transcripts of all previous high school and/or college courses completed before or after induction or as a part of Army or Navy basic training or specialized training program, and also records of courses taken by correspondence through the United States Armed Forces Institute. The latter records may be secured from the United States Armed Forces Institute, Madison, Wisconsin. All transcripts and records should be sent directly from the school, college, or other agency to the University.
2. Make application through the local V.A. or Veterans Service Office for a Certificate of Eligibility and Entitlement.

War orphans training under Public Law 634, children of totally disabled service-connected veterans training under Public Law 88-361 and veterans training under Public Law 358 will receive an educational and training allowance each month from the government to meet part of the expenses of their training and living costs. Tuition, fees, books, supplies and equipment will not be paid by the government; instead, they will have to be paid out of the monthly educational and training allowance. Veterans training under Public Laws 894, 87-815 will be furnished tuition, fees, books and supplies as determined by the V.A. and school officials. A veteran or war orphan or child of a totally disabled service-connected veteran will receive his monthly

allowance sometime after the end of each month of training completed. Before the Veterans Administration can pay him, the law requires a certification from the trainee and the University that he was enrolled in and was pursuing his course during that period. Veterans, war orphans and children of totally disabled service-connected veterans attending the University are required to maintain satisfactory academic achievement and attendance.

COLLEGE ENTRANCE EXAMINATION

All candidates for admission will be required to present satisfactory scores on the Scholastic Aptitude Test of the College Entrance Examination Board.

Arrangement for the tests is the responsibility of the applicant and should be made with the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey, as early as possible, preferably seven to eight weeks before the test date. Early registration allows time for clearing up possible irregularities which might otherwise delay the reports.

During the year, the College Entrance Examination Board will administer tests on the following dates:

Saturday, January 14, 1967	Saturday, January 13, 1968
Saturday, March 4, 1967	Saturday, March 2, 1968
Saturday, May 6, 1967	Saturday, May 4, 1968
Saturday, July 8, 1967	Saturday, July 13, 1968
Saturday, December 2, 1967	

The Scholastic Aptitude Test will be given at 8:30 in the mornings, while the afternoons, beginning at 1:30, are reserved for not more than three Achievement Tests on any one date, or not more than any two Achievement Tests if the Writing Sample is being taken that day.

The *Bulletin of Information,* with application blanks, distributed without charge by the College Entrance Examination Board, will be sent to all secondary schools that present candidates for the tests. The applications may be used for any College Board administration involving the SAT, Achievement Tests, and the Writing Sample. Booklets describing the tests and giving sample questions, explanations

and answers, and score interpretation booklets for counselors and students are distributed in quantity to secondary schools without charge.

For students returning from the Armed Services or who find it impossible or difficult to take the Scholastic Aptitude Test on one of the regularly scheduled dates, the University provides for institutional administrations of the test. Further information may be obtained from the Testing Service of the University.

ADVANCED PLACEMENT COURSE CREDIT

Any student may apply for course credit in appropriate subjects if he has had an Advanced Placement Course in secondary or preparatory school, and has received a score of four or five on the Advanced Placement Test. These tests are given in May of each year by the College Entrance Examination Board.

ACADEMIC REGULATIONS

GRADING

The unit of measurement of university work is the semester hour. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour.

Letters are used to indicate the quality of work done. Each letter carries a quality point value for each semester hour of work attempted. The meaning of each letter with its accompanying quality point factor is:

Letter	Description	Quality Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	0
W	Withdrawal	0

QUALITY POINT RATIO

A student's quality point ratio at the University of North Carolina at Charlotte is determined by multiplying the number of quality points for each grade by the number of hours received in that course and adding all accumulated quality points together, then dividing by the total number of hours the student has attempted, except those for which the student has received a grade of W. In computing the quality point ratio, only those credits attempted at one of the campuses of the University of North Carolina are included.

(See Requirements for Continued Enrollment, p. 25-26.)

GRADE OF I

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester in residence, but no later than twelve months after the end of the term in which the I was assigned. If the I is not removed during the specified time, a grade of F is automatically assigned.

GRADE OF W

No grade will be given for a course dropped on or before the last day to drop courses without grade evaluation. When a student withdraws from a course after that date, as indicated on the Academic Calendar, but before the end of a semester, and if in the opinion of his instructor he is passing at the time of withdrawal, he will receive the grade of W. Courses given the grade of W do not count as hours attempted. The time of withdrawal is the time the drop card is accepted by the Records Office.

WITHDRAWAL

Any student who leaves the University before the close of the term, without written notification to the Records Office, will receive a grade of F in all courses.

The student should notify the Records Office immediately upon leaving the University.

ATTENDANCE

Each student is required to attend all sessions of the courses in which he is enrolled and he is held responsible for all assignments, including tests. No class cuts are allowed and instructors are not required to give make-up tests.

Even in the event of personal illness or other unavoidable circumstances, no student will be given credit for any course unless he has attended at least 75 per cent of the total class hours of instruction.

CLASSIFICATION OF STUDENTS

At the beginning of the fall semester regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows: Freshman, 1-24 semester hours; sophomore, 25-51 semester hours; junior, 52-89 semester hours; senior, 90 or more semester hours.

REQUIREMENTS FOR CONTINUED ENROLLMENT

As a general rule, each student will be allowed to remain at the University of North Carolina at Charlotte for the first two semesters following his first enrollment, or until 30 semester hours have been attempted at the University of North Carolina at Charlotte, whichever happens last.

As a general rule, the Summer Session at the University of North Carolina at Charlotte shall be open to all students previously enrolled at the University of North Carolina at Charlotte, including students academically ineligible to continue during the regular academic year.

Any student who is not making satisfactory progress as defined by the table below will have his enrollment at the University of North Carolina at Charlotte suspended, with the exception stated in paragraph one of this section:

Hours of credit earned, including transfer credit:	Minimum Grade Point Average to Continue:
0-29	1.10
30-59	1.30
60-89	1.60
90-109	1.80
110-and over	1.90

After the student has earned 60 semester hours, he is expected to make at least a 2.0 quality point ratio for each semester. A student at this level who makes less than a 2.0 ratio in any given semester will be placed on academic probation. A student on academic probation shall be limited to a maximum of 15 hours attempted in a semester.

A student's quality point ratio will be computed on the basis of hours attempted at the University of North Carolina, except that no more hours of "F" than hours of credit for a course will be used in ascertaining the quality point ratio.

No student will be suspended from the University of North Carolina at Charlotte at the end of any semester for which his quality point ratio is at least 2.20.

REQUIREMENTS FOR REMOVAL OF ACADEMIC SUSPENSION

No student under suspension will be readmitted to the University if he does not completely satisfy the entrance requirements as stated elsewhere in this catalog.

In addition, a student who has been suspended by reason of failure to satisfy the requirements for continued enrollment as stated above will be ineligible for readmission until the expiration of the next semester following his suspension (except that he will be permitted to enroll in the Summer Session) or until he meets the requirements for continued enrollment. After readmission, he will be expected to satisfy the requirements for continued enrollment.

At the end of the semester in which the student fails to meet the requirements for continued enrollment for the second time, he will be suspended and may be readmitted only after meeting the requirements for continued enrollment.

The student has recourse to the following means of meeting the requirements for readmission: Summer Sessions and correspondence courses at any campus of the University of North Carolina in which the student is eligible to enroll.

If a student attends another institution after suspension from the University of North Carolina at Charlotte, he may be readmitted, provided that he presents a minimum of

twenty-four (24) credit hours of acceptable work from that institution. In this case, he will be accepted as a transfer student and must satisfy the requirements for continued enrollment.

Appeal for Readmission: Under extenuating circumstances and upon the recommendation of the student's academic dean, an appeal for readmission may be considered by the appropriate admission committee.

REQUIREMENTS FOR READMISSION

Students entitled to honorable dismissal and in good standing who were previously enrolled at the University of North Carolina at Charlotte, but who did not complete the previous semester at the University, should apply for readmission. If students have earned credits at another college or university since last attending the University of North Carolina at Charlotte, they must submit an official transcript of credit from that institution for consideration for readmission.

REGISTRATION FOR CREDIT

Registration for credit in any course is limited to the first week of a semester and the first three days of classes of a summer term. No credit will be given to a student for a course unless he is properly registered for it.

COURSE LOAD

Five subjects of not less than fifteen semester hours total constitute a normal full semester program, but a student may register for less work. Any student carrying twelve or more semester hours will be considered a full-time student by the University. However, many outside agencies, such as the Veterans Administration, require more than the minimum of twelve semester hours.

Course load is dependent on two factors: the scholastic ability of the student as reflected by his scholastic record, and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should

not carry more than 10 semester hours. A student working 40 hours a week should not carry more than 7 semester hours.

ADDING OR DROPPING A COURSE

In order to add or drop a course after the registration period, a student must secure written permission from his advisor and complete the necessary procedure as prescribed by the Registrar's Office. No student will be permitted to add a course or change sections of a course after the first week of a semester or the first three days of classes in a summer term.

A student who withdraws from a course after the last day to drop courses without grade evaluation, but before the end of a semester, will receive a grade of W if in the opinion of his instructor he is passing at the time of withdrawal, and will receive a grade of F if in the opinion of his instructor the student is failing the course at the time of withdrawal. (See *Grade of W*, p. 24.)

ASSIGNMENT OF ACADEMIC ADVISORS

Each student entering the University of North Carolina at Charlotte must designate a degree and major as listed on page 44. Any student interested in pursuing a degree program not currently offered on the Charlotte campus should indicate this objective. The assignment of the academic advisors is determined by the designated major and objective.

CHANGING OF DEGREE AND MAJOR

A student can change from one degree or one major to another only with the approval of the chairman of the department of his new major and of the academic dean.

REQUIREMENTS FOR GRADUATION

All Seniors must complete such portions of the Graduate Record Examination as are required by the University. These examinations should be taken on the dates indicated in the Academic Calendar.

A minimum of 126 semester hours of work is required

for graduation with a baccalaureate degree. For information on four-year degrees see pages 44-51.

RESIDENCE REQUIREMENTS

The minimum residence requirement for a Bachelor's Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University. Exception to either of these hour provisions may be made upon approval of the student's major department in consultation with the department offering the course or courses in question and with the approval of the academic dean.

Course work taken in residence shall be construed to mean course work offered by the University of North Carolina at Charlotte and taken on the Charlotte campus.

TRANSCRIPTS OF RECORDS

Upon request of the student, a transcript of academic credits earned at the University of North Carolina at Charlotte will be sent to any other college or university, provided that all accounts with the University have been settled satisfactorily.

Each student is entitled to one free transcript of his work regardless of how early in his academic career the request may be made. A student requesting an additional transcript should enclose one dollar for this service. Transcript request should be made to the Records Office at least one week before the transcript is needed.

PARKING

Regular parking is restricted to faculty and students as outlined in the Student Handbook. A limited number of spaces are provided for visitors to the campus. Student and faculty automobiles must be registered with the University, and registration decals must be properly displayed.

STUDENT RESPONSIBILITY

Every student is responsible for the proper completion of his academic program, for familiarity with all requirements of the University catalogue under which he intends to graduate, for maintaining the grade average required, and for meeting all other degree requirements, including attendance at the commencement exercises at which he will receive his diploma. His advisor will counsel him, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment, and to be familiar with the information contained in the Weekly Newsletter. He is responsible for maintaining communication with the University, by keeping on file with the Records Office at all times his current address, including ZIP code, and telephone number.

Every student, while he is associated with the University, is expected to comport himself in campus and community life in a manner that will reflect credit upon the University.

TUITION AND FEES

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

Tuition and fees are due and payable on the day of registration. Checks and money orders should be made payable to the University of North Carolina at Charlotte.

Students taking eight or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking less than eight hours of work during a regular semester will be charged a prorated portion of tuition and fees as specified below:

	EACH SEMESTER	
	In-State Students	Out-of-State Students
Eight or More Semester Hours		
Tuition	$ 87.50	$300.00
General Fee	62.50	62.50
Total	$150.00	$362.50
Five to Seven Semester Hours		
Tuition	$ 43.75	$150.00
General Fee	31.25	31.25
Total	$ 75.00	$181.25
Four or Fewer Semester Hours		
Tuition	$ 22.00	$ 75.00
General Fee	16.00	16.00
Total	$ 38.00	$ 91.00

No extra fees are charged for laboratory courses as such. However, an extra fee for individual music study is charged in the amount of $45.00 per semester for one hour credit.

The estimated average cost of books and supplies per semester is about $50.00. Beginning students in engineering may expect an additional cost of $50.00 to $60.00 for drawing instruments, slide rule, and supplies. Uniforms and supplies for nurses will cost approximately $100.00.

The University reserves the right to make, with the approval of the proper authorities, changes in tuition and other fees at any time.

FEES FOR SUMMER SESSION

The rates for each of the 1967 summer sessions are based on the number of semester hours taken by each student and are as follows (all fees included):

	In-state students	Out-of-state students
3 semester hours	$39.50	$ 75.50
4 semester hours	47.50	95.50
5 semester hours	55.50	115.50
6 semester hours	63.50	135.00
7 semester hours	71.50	155.50

RESIDENCE STATUS FOR TUITION PAYMENT

The tuition charge for legal residents of North Carolina is less than for nonresidents. A legal resident of North Carolina is one who has his domicile in this state. It is important that each applicant for admission and each enrolled student know his residence status for tuition payment and understand the regulations governing residence status. The following regulations cover most factual situations:

1) A person twenty-one years of age or older is not deemed eligible for the lower tuition rate unless he has maintained his legal residence in North Carolina for at least the six months next preceding the date of his first enrollment in an institution of higher education in this State.

2) The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is still living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

3) The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident minor student at the time of his first enrollment whose parents have subsequently established legal residence in North

Carolina; and (b) in the case of a resident who abandons his legal residence in North Carolina. In either case, the appropriate tuition rate will become effective at the beginning of the semester or term next following the date of change of residence status.

4) The legal residence of a wife follows that of her husband, except that a woman student currently enrolled in this institution as a resident may continue as a resident even though she marry a nonresident.

5) Military personnel attached to military posts or reservations in North Carolina are not considered eligible for the lower tuition rate unless they have maintained a legal residence in the state for at least the six months next preceding the date of first enrollment in an institution of higher education in the State.

6) Aliens lawfully admitted to the United States for permanent residence who have established a legal residence in North Carolina according to paragraphs numbered 1, 2, or 4, above, are eligible for the lower tuition rate.

7) Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the lower tuition rate.

The furnishing of incomplete or incorrect information regarding residence may result in the student's dismissal from the University. The Registration Office determines each student's residence status on the basis of existing information and interpretation of regulations.

APPLICATION FEE

Applicants for admission are required to submit a $10.00 application fee with the application form. The fee will be applied to the student's general fees in the semester for which application is made. The fee is not refunded to those who fail to complete their applications, those who are accepted and fail to enroll, and those denied admission.

LATE REGISTRATION FEE

A non-refundable fee of $10.00 will be charged for those registering after the designated registration period each semester.

GRADUATION FEE

Each member of the graduating class must pay a graduation fee of $10.00 at the beginning of the spring semester of the year in which he expects to graduate. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees in absentia.

STUDENT ACTIVITIES

A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to most athletic contests, dramatic productions, Union-sponsored activities, social and entertainment functions, and for subscriptions to the newspaper and literary magazine. The yearbook is provided free to all students taking eight or more semester hours of work each semester during the academic year. Other students may obtain a yearbook upon payment of $5.00.

REFUNDS

A student who officially withdraws from the University during the first two weeks of the semester will receive a refund of the full amount paid less a registration fee of $20. After the first two weeks of a semester, no refund will be made.

In each summer session, a student who officially withdraws from the University during the first three class days will receive a refund of the full amount paid less a registration fee of $10. After the first three class days of the summer session, no refund will be made.

The application fee is not refunded in cases where it has been applied to tuition and fees.

FINANCIAL AID

Financial assistance is available to University students in several forms: scholarships, grants-in-aid, loans, and part-time employment. The University makes every effort within the limits of its available resources to encourage and assist students with seriousness of purpose to secure a University education. A financial problem should not

deter a student from submitting an application for admission.

HOW TO APPLY:

The University of North Carolina at Charlotte participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. Together with other participants in CSS, we subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial assistance are usually required to submit a copy of the Parents Confidential Statement (PCS) form to the College Scholarship Service, designating the University of North Carolina at Charlotte as one of the recipients. The PCS should be submitted prior to August 15 in order to assure that it can be processed in time for an award to be made before Fall registration. The PCS form may be obtained from a secondary school, the College Scholarship Service, P. O. Box 176, Princeton, New Jersey 08540, or the Office of Student Affairs, University of North Carolina at Charlotte.

Each applicant will be considered for all available types of financial aid—scholarships, grants-in-aid, loans, and employment. The University seeks to assign the kind of aid best suited to the needs and qualifications of the applicant. In general, the awards are approved in amounts proportionate to the demonstrated need of the student, and his satisfactory record of achievement and school citizenship.

Renewal of financial aid is based upon a student's making a clearly satisfactory record. After enrollment, the student should make application at the end of each school year for financial aid in the next year.

As in the past, the State of North Carolina is making available this year a sum of money to be used for grants to deserving students.

LOANS:

The Emergency Loan Fund was established in 1958 to provide funds which students may borrow for short-term

emergencies. Students may borrow up to $25 for 30 days. There is a $.25 service charge, but no interest is charged on the loan.

The Student Loan Fund provides loans of up to $100 for a year at an interest rate of 3 per cent per annum.

The National Defense Student Loan Fund is available at the University. Full-time students in need of financial assistance may borrow up to $1,000 each year for university-related expenses such as tuition, fees, books, and transportation. The interest rate is 3 per cent per annum, but no interest is charged while the student is enrolled for at least 8 semester hours at the University. Loans must be repaid within 10 years.

Federal Guaranteed Low Interest Loans are also available. This program is similar in most respects to the National Defense Student Loan program.

Prospective Teachers Scholarship Loan Fund provides funds for prospective teachers each year. The loans are made in the amount of not more than $350. The fund is administered by the State Superintendent of Public Instruction, Raleigh, North Carolina. All scholarship loans are evidenced by notes which bear interest at the rate of 4 per cent per annum from September 1 following fulfillment by a prospective teacher of the requirements for a teacher's certificate based upon the bachelor's degree. Scholarship loans, together with 4 per cent thereon, *may be cancelled by teaching one full year in North Carolina for each annual scholarship received.* Consideration for a scholarship loan is given to the aptitude, purposefulness, scholarship, character, and financial need of the applicant. For detailed information about the program, write to Prospective Teachers Scholarship Loan Fund, State Department of Public Instruction, Raleigh, North Carolina.

Other Loan Funds are made available by clubs and individuals. These include the A.A.U.W. Loan Fund, the Allie M. St. Clair Loan Fund, the Annas Loan Fund, the Charlotte Kiwanis Club Loan Fund, the Ebersole Fund, the Lions Club Loan Fund, and the Rotary Club Loan Fund.

Application blanks and details on loan funds may be obtained from the Dean of Student Affairs, The University

of North Carolina at Charlotte, Post Office Box 12665 Charlotte, North Carolina 28205.

SCHOLARSHIPS

Altrusa Club of Charlotte
American Business Women's Association
Charlotte Chapter
Mecklenburg Chapter
J. Murrey Atkins
Bonnie E. Cone
Brycie Baber
Carolina Yarn Association
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women's Club
Charlotte Civitan Club
Charlotte-Mecklenburg North Carolina Education Association
Charlotte Music Club
Charlotte *News*
Charlotte *Observer*
Charlotte Sales and Marketing Executives, Inc.
Concrete Materials, Inc.
Concrete Supply Company
Corporate Insurers Service, Inc.
Daughters of the American Revolution, Mecklenburg Chapter
W. Cleveland Davis, Sr.
Eastern Airlines Management Council
Fidelis Bible Class, Myers Park Baptist Church
Harry P. Harding
Arthur P. Harris
Harrison-Wright Company
Drs. Aubrey and Cecil Hawes
Housewares Club of the Carolinas
Jefferson Standard Foundation
Junior Achievement
Knight Publishing Company
Pierre Macy
McEwen
Mecklenburg Junior Chamber of Commerce

Mecklenburg County Medical Society
Mitchell and Becker
Mumaw Engineering
National Association of Accountants
Panhellenic Congress of Charlotte
Pilot Club
Cecil Prince
Schoenith Foundation
Society of Real Estate Appraisers
A. K. Sutton
United Select Foods
Cliff M. Westbrook
Earle Whitton
Mr. and Mrs. J. L. Winningham
Woman's Allied Auxiliary,
North Carolina Motor Carriers' Association
Zonta Club of Charlotte

EMPLOYMENT

The Office of Student Affairs assists the student in locating work during his undergraduate years as part of the program of financial assistance. The University participates in the Federal Work-Study program and often couples part-time work with scholarship or loan assistance to meet the financial need of a student.

HONORS

AWARDS

The Bonnie E. Cone Award is given annually to a freshman student who has demonstrated fine college spirit and made a significant contribution to college life.

The Bill Mitchell Award. Two members of the graduating class who have shown outstanding qualities of scholarship and leadership and maintained an attitude of unselfish interest in the welfare of their fellow students and of the University as a whole are selected for the award.

The Chemistry Award is presented annually to the student with the highest scholastic average in freshman chemistry.

The Mathematics Award is given annually to the student whose achievement in mathematics during his freshman

year is judged most outstanding.

The Physics Award is given annually to the outstanding student in introductory physics.

The James W. Grey Award is given annually to a student who has maintained an above average scholastic average while participating in programs of organized sports and physical fitness at the University.

The Charlotte Panhellenic Award. In considering young women for the Panhellenic Award, acceptance in the University Community is the chief factor. The candidate should be an exemplary student: in conduct, poised and gracious; in service, able and cooperative; in scholarship, superior and enthusiastic.

The Education Award is presented annually to two members of the graduating class who have shown qualities of leadership and scholarship and who are planning to enter the teaching profession.

The National Conference of Christians and Jews Award is given annually to two students in the field of education, who because of their service and devotion to their school, because of the love and concern they have exhibited for their fellow students and fellow men regardless of social or economic status, race, color or creed, best exemplify the highest ideals of the National Conference of Christians and Jews of the brotherhood of man under the fatherhood of God.

DEAN'S LIST

The Dean's List is a record of all students whose academic record merits special recognition from the University. In order to qualify for the Dean's List, a student must take a full program of five subjects (at least fifteen semester hours of work) and maintain a quality point average of at least 3.00 (a grade of B) with no grade lower than a C.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages are honored by being named Commencement Marshals.

The marshal who has the best academic record is designated Chief Marshal.

WHO'S WHO

Students are selected for *Who's Who Among Students in American Universities and Colleges* on the basis of scholarship, citizenship, participation and leadership academically and extracurricularly, and, in general, their potential future usefulness to society.

HOUSING

The Office of Student Affairs maintains listings of rooms in the community available to students. Personnel in this office will assist students in locating desirable living accommodations.

III. DEGREES

DEGREES OFFERED

Bachelor of Arts (B.A.):
- Biology
- Business Administration
- Chemistry
- Economics
- English
- French
- History
- Mathematics
- Political Science
- Psychology
- Sociology
- Spanish

Bachelor of Science (B.S.):
- Accounting
- Biology
- Chemistry
- Mathematics
- Nursing

Bachelor of Science in Engineering

DEGREES WITH DISTINCTION

Each of the preceding degrees is awarded *with high honor,* when the graduate's quality point ratio is 3.80 or more, or *with honor,* when his quality point average is 3.40 or more, but less than 3.80.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

The degree of Bachelor of Arts is offered with majors in the following fields: Biology, Business Administration, Chemistry, Economics, English, French, History, Mathematics, Political Science, Psychology, Sociology, and Spanish.

COURSE REQUIREMENTS

	Semester Hours
English 101, 102, 201, and 202, 203, or 204. Students making a sufficiently high placement	12

test score in English are exempted from English 101.

History 101 and 102. 6

Mathematics, 6 hours, including either 102 or 141. 6

Natural Science, 16 hours, consisting of four laboratory courses of at least 4 hours each. At least one of these must be taken from each of the following groups: Group A: Chemistry, Physics, Geology, Geography 101. Group B: Biology, Psychology 201. Psychology 201 may be offered as a Natural Science or as a Social Science, but not as both. 16

Social Science, 9 hours, taken from:
Economics, History, Political Science, Anthropology, Sociology, Psychology, Philosophy, or Religion. 9
A course in Philosophy or Religion may be offered as a Social Science or as a Humanity, but not as both.

Humanities, 6 hours, taken from:
Art Appreciation, Art History; Literature; Music Appreciation; Philosophy, Religion: 6
A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.

Courses in the major field: see the requirements of the major department. —

Related work: 15 to 21 hours of work related to the major field, as required by the major department. 15-21

Foreign Language: completion of one semester of a foreign language at the 300 level. See Foreign Language Requirement, page 47 ff. —

SEMESTER HOUR REQUIREMENTS

Total required: a minimum of 126 hours, but see the requirements of the major program.

Maximum number of hours permitted from a single department to count toward the degree: 36 semester hours.

Related work: 15 to 21 hours, as required by the major department, but in no more than two departments other than the major.

Hours in the major department: see the requirements of that department.

QUALITY POINT REQUIREMENTS

In all courses attempted at the University, a minimum overall quality point average of 2.00 is required.

In all courses in the major department, a minimum overall quality point average of 2.00 is required.

COURSE LEVEL REQUIREMENT

Junior and Senior students must have the consent of their major department to enroll in any course below the 300 level, not required in their degree program.

RESIDENCE REQUIREMENTS

For residence requirements, see page 29.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered with majors in the following fields of study: Accounting, Biology, Chemistry, Mathematics, and Nursing.

GENERAL DEGREE REQUIREMENTS:

All general degree requirements are the same for the degree of Bachelor of Science as for the degree of Bachelor of Arts, with the following exceptions: The maximum number of hours permitted from a single department to count toward the degree of Bachelor of Science is 46 semester hours; related work of 15-25 hours is required.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

The following suggested program for the freshman and sophomore years is designed to assist new students in making out their initial programs. It is planned to initiate the satisfaction of basic degree requirements, and will apply to most curricula. However, the student must consult the major department for modifications of this program

designed to coordinate with the entire major degree program.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

Course	Number	Semester Hours	Total
	FRESHMAN		
	First Semester		
English	101	3	
History	101	3	
Mathematics	101	3	
Natural Science		4	
Foreign Language	201*	3	
			16
	Second Semester		
English	102	3	
History	102	3	
Mathematics	102	3	
Natural Science		4	
Foreign Language	202*	3	
			16
			32
	SOPHOMORE		
	First Semester		
English	201	3	
Social Science (or Humanities)		3	
Natural Science		4	
Foreign Language	300 level	3	
Elective		3	
			16
	Second Semester		
English	202 (or 203 or 204)	3	
Social Science (or Humanities)		6	
Natural Science		4	
Elective		3	
			16
			32

* See foreign language requirements, below.

FOREIGN LANGUAGE REQUIREMENTS:

I. On entering the University of North Carolina at Charlotte, students who present for admission one unit of

a high school language, or less than one unit, must complete courses 101, 102, 201, 202, and one semester at the 300 level in a foreign language. No credit will be given for courses 101 and 102, when used to make up an entrance deficiency.

II. Students who present one or more units of a high school language for admission should take the language placement test during the orientation period, when they intend to continue the same language at the University. On the basis of these test scores, students will be assigned to the foreign language course that corresponds to their competence as measured by these standardized tests.

A. Student continuing the same language as that presented for admission:
   1. If he places by test in 201, he will be required to complete courses 201, 202, and one semester at the 300 level.
   2. If he places in 202, he will be required to take only 202 and one semester at the 300 level.
   3. If he places below the 200 level, he should take without degree credit 102, or 101 and 102, as the case may be, in order to be adequately prepared to continue with courses 201, 202, and a 300 course.

B. A student changing to a language other than that presented for admission, or presenting for admission a foreign language not taught at the University of North Carolina at Charlotte, will be required to complete courses 101, 102, 201, 202, and one semester at the 300 level in a new language, with the following exceptions:
   1. A student presenting two or more years of high school language for entrance credit, who enters a curriculum that requires a language different from the one he presents, may complete his requirement by completing course 202 in the required language.
   2. A student presenting for admission two years of high school Latin or Greek, or any other foreign language not taught at the University,

may satisfy the language requirement by completing course 202 in a modern foreign language.

III. *Transfer Student.*

A. A student transferring to The University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he has completed satisfactorily two years of high school foreign language.

B. It is recommended that students transferring from other colleges take language placement tests in the language they intend to continue at the University, and that they register for the course in which they are placed according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Majors in: Electrical Engineering and Mechanical Engineering.

COURSE REQUIREMENTS: (See the curricula and course descriptions on pages 79 to 90.)

Common requirements for majors in Electrical Engineering or Mechanical Engineering

English 101, 102, and 201 or 205	9
History 101 and 102	6
Mathematics 141, 142, 241, 242, 371, and 372	22
Chemistry 101 and 102	8
Economics 201	3
Physics 201, 202, and 311	11
Engineering 100 and 102	3
Engineering Mechanics 211	3
Mechanical Engineering 311	3
Total common requirements, semester hours:	68

Further required and elective courses for Electrical Engineering:

Electrical Engineering 211, 212, 252, 311, 312, 321, 332, 351, 352, 421, 431, 441, 442, and 452	35
Electrical Engineering electives, three courses	9
Engineering Mechanics 216	3
Mechanical Engineering 312	3
Humanities and Social Science electives, four courses	12
Technical or Humanities electives, two courses	6
Total further requirements for electrical engineering, semester hrs.	68

Further required and elective courses for Mechanical Engineering:

Mechanical Engineering 261, 312, 321, 351, 352, 411, 418, 421, 422, 451, and 452	22
Mechanical Engineering electives, three courses	10
Engineering Mechanics 214, 312	6
Engineering 113	1
Electrical Engineering 391 and 392	8
Humanities and Social Science electives, 3 courses	9
Technical or Humanities electives, three courses	9
Total further requirements for Mechanical Engineering, semester hrs.	68

SEMESTER HOUR REQUIREMENTS

Total required in Electrical Engineering or in Mechanical Engineering: 136 semester hours.

QUALITY POINT REQUIREMENTS

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

All courses in engineering: a minimum overall quality-point average of 2.00 is required.

The requirements for continued enrollment are as shown on pages 25-26.

COURSE LEVEL REQUIREMENTS

Junior and Senior students must have the consent of the Engineering Department to enroll in any 100 or 200 courses not required in their degree program. The Engineering Electives, the Humanities and Social Science Electives, and the Technical or Humanities Electives will ordinarily consist of sequences of related courses and are

subject to the prior approval of the Engineering Department. See the footnotes to the engineering curricula, pages 81 and 86-87.

RESIDENCE REQUIREMENTS

For residence requirements, see page 29.

PRE-PROFESSIONAL AND PROFESSIONAL CURRICULA

Students who plan to enter a professional school are advised to plan their program so that general requirements for the Bachelor of Arts or Bachelor of Science degree are met in addition to the requirements for the professional program being considered. Candidates for the Bachelor of Arts or Bachelor of Science degree will encounter no difficulty in completing the work for entrance into the professional program while satisfying the requirements for the degree. Pre-professional students should recognize that a broad cultural education is important, and that as many courses as possible should be taken in the humanities, arts, social sciences, and natural sciences. The prospective professional student should inform his advisor of his plans, to ensure that all prescribed work will be completed. The student should familiarize himself with the entrance requirements of the particular school that he hopes to attend.

PRE-LAW CURRICULUM

See History and Political Science Department, page 111.

PRE-MEDICAL AND PRE-DENTAL DEGREE PROGRAMS

See Biology Department, degrees and course offerings.
See Chemistry Department, page 62.

PRE-SOCIAL WORK CURRICULUM

See Psychology Department, page 126-127.

See Sociology Department, page 129.

THE EVENING PROGRAM

The University administers the evening program as an integral part of its total program. Any course in the cata-

logue may be taught in the evening if there is sufficient demand for it. Each course offered in the evening is taught at the same academic level as in the day program and requires the same level of achievement. The exact schedule of time and place for evening courses is contained in special bulletins which may be procured upon request.

For information concerning the evening program, write or call:

Director of Evening Program
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970

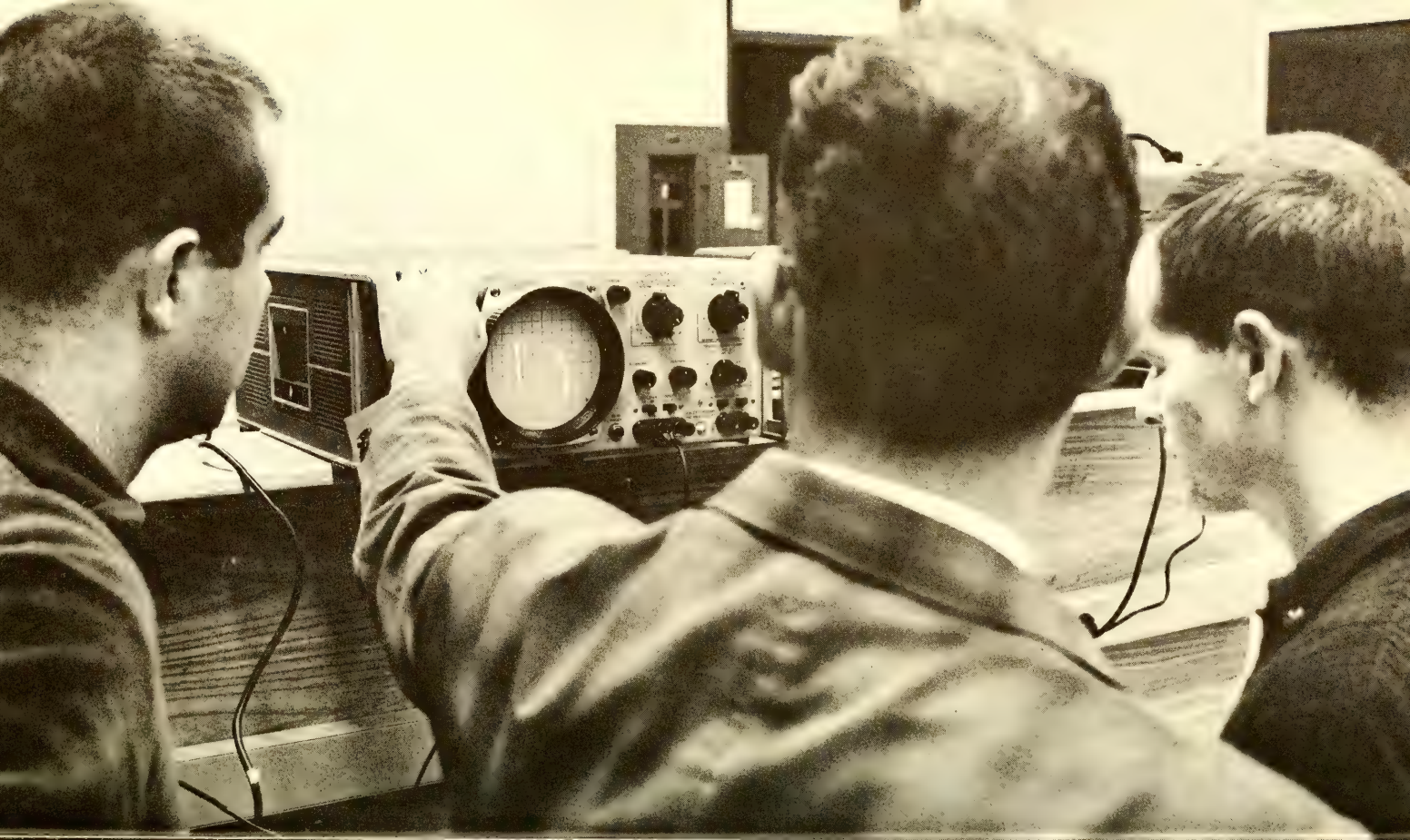
THE SUMMER SESSION

The Summer Session is designed to present courses of the same quality as those offered in the regular academic year. These courses—selected according to the needs of regular students, students transferring from other institutions, and students of the community—are presented in two terms consisting of six weeks each.

For detailed information on the Summer Session, write:

Director of Summer Session
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970



IV. COURSES OF STUDY

COURSES OF STUDY

Following are all courses offered by the University of North Carolina at Charlotte, listed under the department or academic area concerned. Departments and academic areas are listed alphabetically. Under each is given the following information:

The name of the department or area; the chairman and other faculty, with their rank; a statement, where required, of the general policies and programs of the department; a suggested degree program, where this is applicable to the area concerned; a list of the courses offered.

Courses are listed with a course number, the title of the course, the semester hours credit given in parentheses, prerequisites, if any, and a description of the subject matter of the course, with whatever requirements of class or laboratory hours are applicable. If no class hours are given, the number of class sessions per week is the same as the number of semester hours credit for the course.

Courses are in general numbered 100 to 199 for freshmen, 200 to 299 for sophomores, 300 to 399 for juniors, and 400 to 499 for seniors. However, prerequisites for each course must be consulted to determine the student's eligibility to take that course.

Where a detailed degree program is not suggested by a particular department, the student must arrange his program in consultation with the department. However, every student should consult the department of his intended major to be certain that he is following an approved program which will enable him to progress logically and successfully to the conclusion of his degree program, and to fulfill the requirements both of the University and of the major department or professional sequence.

Students intending to teach should consult both the major department and the Department of Education.

ART

Assistant Professor Gatewood

201. ART APPRECIATION. (3) An introduction to art history and appreciation covering basic concepts, aesthetic aims,

and social influences which characterize and differentiate one civilization or period from another. Three lecture hours each week.

203. BASIC DESIGN. (3) A beginning studio course to introduce the student to the fundamentals of organization, composition, and use of color in two dimensional design. Two three hour laboratory periods each week.

204. BASIC DRAWING. (3) A beginning studio course in which the various media and approaches to drawing are investigated. Two three hour laboratory periods each week.

205. PAINTING. (3) A beginning studio course investigating techniques and approaches in painting. Two three hour laboratory periods each week.

302. ART FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite or corequisite: Education 303. A study of materials and techniques which the teacher may use in art activities in the school. Two two hour laboratory periods each week.

310. ANCIENT ART. (3) A study of painting, sculpture and architecture from the pre-classical civilizations through the Roman Empire. Three lecture hours each week.

312. RENAISSANCE ART. (3) A study of the painting, sculpture, and architecture of Italy and of Northern Europe during the Renaissance. Three one hour lecture periods each week.

314. POST RENAISSANCE ART. (3) A study of the painting, sculpture and architecture of Europe from the Baroque period through the early nineteenth century. Three lecture hours each week.

316. MODERN ART. (3) A study of western painting, sculpture and architecture from the mid-nineteenth century to the present. Three lecture hours each week.

320. GENERAL CRAFTS. (3) Prerequisite: Art 203. An introductory studio course in the various craft media and techniques including ceramics, metal, wood and fiber. Six laboratory hours each week.

330. SCULPTURE. (3) Prerequisites: Art 203 and Art 204. A beginning studio course designed to investigate various media and approaches in sculpture. Six laboratory hours each week.

405. PAINTING. (3) Prerequisites: Art 203, 204, and 205. A studio course planned to increase the student's knowledge of, and investigations in painting. Six laboratory hours each week.

BIOLOGY

Professor Hechenbleikner, Chairman; Assistant Professors Matthews, Menhinick; Instructors Burton, Diamond, Vinson

A major in Biology leading to the B.A. degree consists of 32 semester hours. A major in Biology leading to the B.S. degree consists of 40 semester hours. All Biology majors are required to complete Biology 101, 201, 202, 411, Chemistry 101 and 102. Related work will consist of 16 semester hours as approved by the Department.

Suggested Curriculum

A Major in Biology, leading to a Bachelor of Arts or Bachelor of Science Degree*

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 201 or 203 or 301	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (Hum.)	3
Elective (S.S.)	3	Elective (S.S.)	3
Related Work	4	Related Work	4
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Related Work	4
Elective (S.S.)	3	Elective	3
Related Work	4		15
Elective	3		
	17		

SENIOR YEAR

Elective (Biol.)	8	Elective (Biol.)	4
Biology Seminar	1	Electives	12
Elective	6		16
	15	Total Hours: 129	

* The B.A. and B.S. degrees differ in the number of hours required in Biology. A student wishing to receive a B.S. Degree must take two additional courses in Biology (8 hours) in place of the free electives listed above. Related work consists of 16 semester hours as approved by the department. It is recommended that a biology major include 2 courses in Physics, 2 courses in Organic Chemistry, at least 1 course in Geography or Geology, and Mathematics 221 in his program. Students who may attend graduate school should choose French, German or Russian as a Foreign Language.

Suggested curriculum for Pre-Medicine and Pre-Dentistry, leading to a Bachelor of Arts Degree in Biology with related work in Chemistry.

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 203 or 301	4
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (S.S.)	3
Elective (S.S.)	3	Elective	3
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Elective (Hum.)	3	Physics 102	4
Mathematics 221	3	Psychology 201	4
Physics 101	4		16
Elective	3		
	17		

SENIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	8
Biology Seminar	1	Elective (Humanities)	3
Chemistry 303	4	Elective (S.S.)	3
Geography or Geology	4		14
Philosophy	3		
	16	Total Hours: 129	

101. INTRODUCTORY BIOLOGY. (4) The introductory course is designed to acquaint the student with the fundamental principles of life. The molecular and cellular basis of biology is stressed, with emphasis on the following: matter and energy, protoplasm, cell structure, cell physiology, cell reproduction, genetics and concepts of evolution. Three lecture hours and one laboratory period of three hours a week.

201. PLANT MORPHOLOGY. (4) Prerequisite: Biology 101. Selected life histories of major plant groups, stressing relationships, reproduction, and classification of biologically and economically important plant groups. Three lecture hours and one laboratory period of three hours a week.

202. VERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of the vertebrates stressing classification, morphology, anatomy, distribution, life histories, and economic importance. Two lecture hours and two laboratory periods of two hours each a week.

203. MICROBIOLOGY. (4) Prerequisite: Biology 101. A study of the microscopic plants and animals stressing fundamentals of morphology, physiology, culture methods and methods of control. Three lecture hours and one laboratory period of three hours a week.

204. HUMAN ANATOMY AND PHYSIOLOGY. (4) Prerequisite: Biology 101. A course stressing the basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours and one laboratory period of three hours a week.

205. GENERAL PHYSIOLOGY. (4) Prerequisite: Biology 202. A study of the roles of the organ systems of animals in the physiology of growth, metabolism, movement, reproduction and integration. Three lecture hours and one laboratory period of three hours a week.

206. INVERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of representative invertebrate organisms. Phylogeny, morphology, physiology, ecology, economic and biological significance of invertebrates are considered. Three lecture hours and one laboratory period of three hours a week.

302. GENETICS. (4) Prerequisite: Biology 201 or 202. A course designed to acquaint the student of heredity with the facts and principles of inheritance and their consequences. Human inheritance, plant and animal breeding, especially the practical applications pertinent to improvements in offspring are emphasized. Three lecture hours and one laboratory period of three hours a week.

303. COMPARATIVE VERTEBRATE ANATOMY. (4) Prerequisite: Biology 202. Comparative studies of phylogeny and functional anatomy of vertebrates are emphasized. Three lecture hours and one laboratory period of three hours a week.

304. PLANT SYSTEMATICS. (4) Prerequisite: Biology 201. A study of the classification, phylogenetic relationships, and structure of the seed plants. Special emphasis is placed upon their biological relationships by means of field trips and by the collection and identification of specimens collected in the local environment. Two lecture hours and two laboratory periods of two hours each a week.

305. ECOLOGY. (4) Prerequisite: Biology 201 or 202. The fundamental principles of the relationships of plants and animals to each other and to the environment are discussed and demonstrated by trips in the local area. Two lecture hours and two laboratory periods of two hours each a week.

306. CYTOLOGY. (4) Prerequisite: Biology 201 or 202. A study of the organization of cells stressing the morphological and chemical make-up of cellular constituents and their interaction. Two lecture hours and two laboratory periods of two hours each a week.

401. HISTOLOGY. (4) Prerequisite: Biology 202. A microscopic study of vertebrate tissues and organs. Techniques of preparing tissues for study are also included in this course. Two lecture hours and two laboratory periods of two hours each a week.

402. EMBRYOLOGY. (4) Prerequisite: Biology 202. Studies in the gametogenesis, fertilization, early embryology and organogenesis of vertebrates. Two lecture hours and two laboratory hours each week.

403. RADIOISOTOPE TECHNIQUES. (3) Open to seniors majoring in biology, chemistry or physics, or with consent of the department. A study of the use of radioisotopes in science and in the classroom: properties of atomic particles, instrumentation, safety regulations, and radioisotope labeling. One lecture and four laboratory hours a week.

410. INVESTIGATIONS IN BIOLOGY. (One to four hours) A course designed to allow the Senior Biology major to initiate a research problem in his field of interest. All participants must have an academic standing of 3.5 in the major field or permission of the department.

411. SEMINAR. (1) A course required of all Biology majors, to be taken during the fall semester of the senior year. Pertinent topics in the field of Biology, and reports on original research are discussed. Students are required to act as the discussion leaders.

CHEMISTRY

Professors Burson, Chairman, Norman; Associate Professor Kuppers; Assistant Professors Crosthwaite, Gibson

A major in chemistry leading to the B.A. degree consists of 32 semester hours of chemistry among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302 and 303. Related work, which must be approved by the Chemistry Department, consists of 20 semester hours in not more than

two departments. German is the recommended foreign language for the B.A. degree.

A major in chemistry leading to the B.S. degree consists of 44 semester hours of chemistry courses among which must be included Chemistry 101, 102, 203 (or 201), 204 (or 202), 301, 302, 303, 304, 401, 491, and 492. Related work consists of 25 semester hours of mathematics (Mathematics 141 and above) and physics. At least two years of German or two years of Russian are required for the B.S. degree.

Students planning to start a career as a chemist with the baccalaureate degree, and those who intend to prepare for graduate study in chemistry should earn the B.S. degree.

The B.A. degree can be tailored to fit individual needs of those preparing for medical and dental school, those planning to do graduate work in sciences closely related to chemistry, and those desiring a liberal education with concentration in chemistry and related natural sciences.

Students who complete a major in chemistry meet the chemistry subject matter course requirements for teacher certification in North Carolina on the secondary school level. Those students planning to teach should consult an advisor in the Department of Education before the end of their sophomore year to plan their programs in professional education.

The following are recommended course selections for the two degrees.

B.A. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 104**	3
German 101	3	German 102	3
History 101	3	History 102	3
	16 hrs.		16 hrs.
3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202	3
Math 141	4	Math 142	4
German 201	3	German 202	3
Natural Science B	4	Social Science	3
	18 hrs.		17 hrs.
5th Semester		*6th Semester*	
Chemistry 303	4	Chemistry 402	4
Physics 201	4	Physics 202	4
Math 241	4	Humanities	3
German 303	3	Social Science	3
		Elective	3
	15 hrs.		17 hrs.

7th Semester		*8th Semester*	
Chemistry 301	4	Chemistry 302	4
Humanities	3	Social Science	3
Electives	9	Electives	9
	16 hrs.		16 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

B.S. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 141	4
Math 104**	3	German 102	3
German 101	3	History 101	3
	16 hrs.		17 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
Math 142	4	Math 241	4
Physics 201	4	Physics 202	4
German 201	3	German 202	3
English 201	3	English 202	3
	18 hrs.		18 hrs.

5th Semester		*6th Semester*	
Chemistry 301	4	Chemistry 302	4
Chemistry 303	4	Chemistry 304	4
Math 242	4	History 102	3
Soc. Sci.	3	Soc. Sci.	3
Elective	3	Elective	3
	18 hrs.		17 hrs.

7th Semester		*8th Semester*	
Chemistry 401	4	Chemistry 402	4
Chemistry 403	2	Chemistry 403	2
Chemistry 491	1	Chemistry 492	1
Nat. Sci. B.	4	Social Sci.	3
Math or Physics	3 (4)	Math or Physics	3 (4)
Humanities	3	Humanities	3
	17 (18) hrs.		16 (17) hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203 (201).

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

101. GENERAL CHEMISTRY. (4) Prerequisite or corequisite: Mathematics 101, or Mathematics 103. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

102. GENERAL CHEMISTRY. (4) Prerequisite: Chemistry 101. Continuation of Chemistry 101 including qualitative analysis. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

201. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 102. Basic theories, principles, and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Laboratory includes qualitative organic analysis. Three lecture hours and two laboratory periods of three hours each per week.

202. ORGANIC CHEMISTRY. (6) Prerequisite: Chemistry 201. Continuation of Chemistry 201. Three lecture hours and two laboratory periods of three hours each per week.

203. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 102. Lecture same as Chemistry 201. Three lecture hours and one laboratory period of three hours a week.

204. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 203. Lecture same as Chemistry 202. Continuation of Chemistry 203. Three lecture hours and one laboratory period of three hours a week.

301. PHYSICAL CHEMISTRY. (4) Prerequisites: Chemistry 102, Mathematics 241, Physics 202. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours and one laboratory period of three hours per week. (Credit for both 301 and 311 will not be given.)

302. PHYSICAL CHEMISTRY. (4) Prerequisite: Chemistry 301. Continuation of Chemistry 301. Three lecture hours and one laboratory period of three hours a week. (Credit for both 302 and 312 will not be given.)

303. QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 102 and satisfactory work in college mathematics and physics. Introductory course in quantitative analytical chemistry, including both volumetric and gravimetric procedures. Two lecture hours and two laboratory periods of three hours each a week.

304. ADVANCED QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 301, Chemistry 303. Continuation of Chemistry 303, involving more difficult methods including instrumental methods such as spectrophotometric, electroanalytical, and chromatographic techniques. Two lecture hours and two laboratory periods of three hours each a week.

311. PHYSICAL CHEMISTRY. (3) Prerequisite: Consent of the department. Same course as Chemistry 301 but taught without the laboratory. Three lecture hours a week. (Credit for both 301 and 311 will not be given.)

312. PHYSICAL CHEMISTRY. (3) Prerequisite: Chemistry 301 or 311. Same course as Chemistry 302 but taught without the laboratory. Three lecture hours a week. (Credit for both 302 and 312 will not be given.)

401. ADVANCED INORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 302, 304. Descriptive and theoretical inorganic chemistry, including the application of physical-chemical principles to the study of inorganic systems. Laboratory work involving inorganic preparations and analytical instrumental techniques. Three lecture hours and one laboratory period of three hours a week.

402. ADVANCED ORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 202 (or 204), 303. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis, including instrumental methods. Two lecture hours and two laboratory periods of three hours each a week.

403. INDEPENDENT STUDY AND RESEARCH. (1 to 4) Prerequisites: Chemistry 204 (or 202), 302, 304. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry, or biochemistry; introduction to research. Hours in consultation, library and laboratory to be determined.

411. ADVANCED PHYSICAL CHEMISTRY. (3) Prerequisites: Chemistry 301 or 311, Physics 311, Mathematics 372 (the latter may be taken concurrently). Topics selected from quantum chemistry and/or statistical thermodynamics. Three lecture hours per week.

491. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Discussion of recent developments in chemistry. Written and oral reports will be submitted.

492. CHEMISTRY SEMINAR (1) Prerequisite: Senior Standing. Continuation of Chemistry 491.

ECONOMICS AND BUSINESS ADMINISTRATION

Professor Wubben, Chairman; Assistant Professor Higgins; Instructors Causey, DeFelice, Dunn, Rogers, Turner, Williamson

Accounting

A major in Accounting leading to the B.S. degree consists of the following 39 semester hours of courses: Business Administration 201, 202, 311, 316, 400, 380, 371, 373, 471, 473, 475, 477, and 478.

The following fifteen hours of related work are required: Mathematics 221, 222, Economics 305, Economics 324, and three additional hours either in mathematics or economics.

Six semester hours of humanities and nine semester hours of social science are required. The course in Principles of Economics (Economics 201, 202), which is prerequisite for many advanced courses in this program, will be specified as satisfying six hours of the social science requirement.

A Representative Program for a Course of Study Leading to the B.S. Degree in Accounting

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics 102	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Mathematics 221**	3	Mathematics 222**	3
Bus. Administration 201*	3	Business Administration 202*	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 311*	3	Economics 324**	3
Business Admin. 373*	3	Business Admin. 371*	3
Foreign Language (or elect.)	3	Business Admin. 471*	3
Science	4	Science	4
		Humanities	3
	16		19

SENIOR YEAR

Economics 305**	3	Business Admin. 400*	3
Business Admin. 473*	3	Business Admin. 475*	3
Business Admin. 477*	3	Business Admin. 478*	3
Social Science	3	Free Elective	3
Humanities	3	Related work in Econ. or Math**	3
	15		15

TOTAL HOURS: 127

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement.).

**Indicates related work.

Business Administration

A major in Business Administration leading to the B.A. degree consists of the following courses: Business Administration 201, 202, 371, 316, 380, 311, 400, and 444.

The following related work is required: Mathematics 221, 222, Economics 305, 324, 315, and 480.

The course in Principles of Economics (Economics 201, 202) will satisfy six hours of the requirement of nine semester hours of social science. This course is prerequisite to many of the courses listed above.

A Representative Program for a Course of Study Leading to the B.A. Degree in Business Administration

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 371*	3	Business Admin. 311*	3
Economics 324*	3	Science	4
Foreign Lang. (or elect.)	3	Free elective	3
Science	4	Free elective	3
	16		16

SENIOR YEAR

Business Admin. 400*	3	Business Admin. 444*	3
Economics 315*	3	Economics 480*	3
Economics 305*	3	Free elective	2
Free elective	3	Free elective	3
Humanities	3	Social Science	3
	15	Humanities	3
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement), and Mathematics 221, 222 (Probability & Statistics).

Economics

A major in Economics leading to the B.A. degree consists of 24 hours of courses offered by the Department of Economics numbered 300 and above. These 24 hours must include Economics 315, 322, 323, 471, 305, and three of the following: Economics 416, 324, 480, 375, and 477.

The following 21 hours of related work are required: Mathematics 221, 222; Business Administration 201, 202, and three of the following four courses: Business Administration 311, 316, 400, 444.

The course in Principles of Economics (Economics 201, 202), which is prerequisite for many of the courses listed above, will satisfy the requirement of six of the nine semester hours of social science.

A Representative Program for a Course of Study Leading to the B.A. Degree in Economics

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 101	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Language (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Economics 322*	3	Economics 323*	3
Economics 315*	3	Economics elective*	3
Related work in Bus. Adm.*	3	Related work in Bus. Adm.*	3
Science	4	Science	4
Foreign Lang. (or elect.)	3	Social Science	3
	16		16

SENIOR YEAR

Economics 471*	3	Economics elective*	3
Economics 305*	3	Related work in Bus. Adm.*	3
Economics elective*	3	Free elective	3
Free elective	3	Free elective	3
Humanities	3	Free elective	2
		Humanities	3
	15		17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement) and Mathematics 221, 222 (Probability & Statistics).

201. PRINCIPLES OF ACCOUNTING. (3) Prerequisite or corequisite: Economics 201. A study of fundamental accounting principles, with emphasis on managerial uses of accounting data, and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

202. PRINCIPLES OF ACCOUNTING. (3) Prerequisite: Business Administration 201. A study of basic accounting theory; corporate financing and reporting; financial planning; and an introduction to cost accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

311. MARKETING. (3) Prerequisite or corequisite: Economics 202. Prerequisite or corequisite: Business Administration 201. A consideration of the problems involved in the physical distribution of goods from the producer to the final consumer. Attention is given to the various marketing channels and institutions. In general, the course will be taught from the standpoint of the producer of the product to be marketed.

316. FINANCIAL MANAGEMENT. (3) Prerequisites: Economics 324 and Business Administration 201. Principles and problems of business financing. Particular emphasis on financial planning and control.

371. COST ACCOUNTING. (3) Prerequisite: Business Administration 202. A study of cost determination and control. Includes procedures for job order, process and standard systems, and management uses of cost data. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

373. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration 202. A review of basic accounting principles; accounting for resources and liabilities; special problems peculiar to corporations; and analysis and interpretation of accounting reports. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

380. BUSINESS LAW. (3) Prerequisite or corequisite: Economics 202; prerequisite: Business Administration 201 or Business Administration T102. A study of the legal environment in which a business operates, topics covered include contracts, sales, negotiable instruments, agency, partnerships, and corporations.

400. PRODUCTION MANAGEMENT. (3) Prerequisites: Economics 202 and Business Administration 202. Analysis of the

management function of production control, with emphasis at the *micro level.* Ample use of the case study approach will develop an understanding of production planning, control, and decisions.

444. ORGANIZATION THEORY. (3) Prerequisite: Economics 202. An application of traditional and behavioral concepts to business organization and decision making. Primarily a study of the process of decision making in the business organization including the more modern feed back systems of group behavior.

471. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration 373. Special advanced accounting problems and reports including partnership formation and dissolution, installment sales, consignments, branch accounting, consolidated statements, statement of affairs, receiver's accounts, realization and liquidation reports, actuarial science, estates, and trusts. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

473. GOVERNMENTAL ACCOUNTING. (3) Prerequisite: Business Administration 202. Fund accounting procedures for governmental units and institutions. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

475. AUDITING. (3) Prerequisite: Business Administration 202. Auditing theory and practice with emphasis on public auditing. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

477. INCOME TAXATION FOR INDIVIDUALS. (3) Prerequisite: Business Administration 202. A study of federal and state income tax laws applying to individuals. The preparation of individual income tax returns is stressed in laboratory problems. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

478. ADVANCED INCOME TAXATION. (3) Prerequisite: Business Administration 477. A study of federal and state income tax laws applying to partnerships, corporations, estates and trusts; and estate, gift, and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ECONOMICS

201. PRINCIPLES OF ECONOMICS. (3) The first semester of a one-year introductory course in Economics. Topics considered

include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy.

202. PRINCIPLES OF ECONOMICS. (3) Prerequisite: Economics 201. The second semester of a one-year introductory course in economics. Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economics concentration and of agriculture, the theory of income distribution, international economic relationships, and comparative economic systems.

305. INDUSTRIAL RELATIONS. (3) Prerequisite: Economics 202. Systematic analysis of the sociological, economic, and political forces affecting and affected by the work environment. Special emphasis on market structure, the small group, the legal environment, and union structure.

315. MONEY AND BANKING. (3) Prerequisites: Economics 202 and Business Administration 201. The characteristics and functions of money in the modern economy. The operation of our banking system; monetary theory and policy.

322. PRICE THEORY AND INDUSTRIAL ORGANIZATION. (3) Prerequisite: Economics 202. A study of the manner in which prices are determined in various types of markets—competitive, monopolistic, oligopolistic, and monopolistically competitive—and of the characteristics of each. Consideration is given to the economics of the firm, and to the use of economic theory in making business decisions.

323. MACRO-ECONOMIC THEORY. (3) Prerequisite: Economics 322. An analysis of economic aggregates, primarily of income determination. Special emphasis on the development and understanding of current macro-economic models and sector analysis.

324. MANAGERIAL ECONOMICS. (3) Prerequsites: Economics 202 and Business Administration 202. A consideration of economic problems of particular importance to business firms, with a view to using tools of economic analysis in managerial decision making.

375. COMPARATIVE ECONOMIC SYSTEMS. (3) Prerequisite: Economics 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism, and communism.

416. PUBLIC FINANCE. (3) Prerequisite: Economics 315. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

471. INTERNATIONAL ECONOMICS. (3) Prerequisites: Economics 323 and Economics 315. The application of modern developments in price theory, employment theory, and monetary theory to international equilibrium, and world liquidity are also considered.

477. HISTORY OF ECONOMIC THOUGHT. (3) Prerequisite: Economics 323. The development of the great economic ideas of value, distribution, employment, etc., with special emphasis on the foundations of classic economic thought.

480. GOVERNMENT AND BUSINESS. (3) Prerequisite: Economics 202. A historical development of government regulation of business, utilizing the case study approach to develop an understanding of current philosophies and problems in this area.

EDUCATION

Associate Professor Vairo; Assistant Professors Hackney, Reavis, Whittacre

The Department of Education, within the framework of the liberal arts and science curricula, offers programs in elementary and secondary education which fulfill the requirements for North Carolina Class "A" teacher certification. Teacher education at the University of North Carolina at Charlotte is conceived as a cooperative enterprise of the entire faculty. The preparation of teachers is one of the important functions of this University.

The requirements of the program are in addition to the requirements which must be met in a major field of concentration and the general requirements for the Bachelor's degree. Courses offered in the teacher education program may be taken for undergraduate credit and may also be applied toward a teaching certificate or certificate renewal.

In meeting the general requirements for the Bachelor's degree, students who plan to teach should include (1) one course in each of two of the following areas: anthropology, economics, geography, political science, and sociology; (2) one course in American Literature; (3) Health Education 101 and Physical Education 101; and (4) Speech 101.

Students who plan to teach outside of North Carolina are strongly urged to check certification requirements with the Department of Education before the end of their sophomore year, so that they can plan their programs appropriately.

Admission to the Education Sequence

Applications for admission to the Education sequence should be filed with the Department of Education during the students' first semester of their sophomore year. Qualified students will be admitted to the Education sequence in the second semester of their sophomore year. Candidates must have earned at least a 2.0 grade point average, be interviewed by a member of the Department of Education, be in good health substantiated by a physical examination, and have completed Psychology 201. Each student accepted in the Education sequence will be assigned to an advisor in the Department of Education who will coordinate his program in consultation with the major advisor. The Education advisor will confer with the student concerning long range planning of his program, opportunities in the teaching field, and North Carolina certification requirements. The progress of each student in the Education sequence is reviewed by the advisor each semester.

Special Students in Teacher Education

The status "special student" in teacher education is applied to (1) students who hold a Bachelor's degree and are working toward a teaching certificate or certificate renewal, (2) visiting students who are taking courses in the teacher education program with the approval of their resident institutions.

Special students must meet the standards set by the University for admission as well as the requirements of the Department of Education, which include above average scholastic ability, sound mental and physical health, and good speech.

Students should consult with the Department of Education for further details.

Admission to Student Teaching

For admission to Education 450 and 451 (Student Teaching) candidates must have above average scholastic grades, sound mental and physical health, good speech, the approval of the Department of Education, and the recommendation of the major department. The quality of scholarship in the teaching field or area of each candidate shall be at a level above that minimally required for graduation.

Prior to admission to student teaching, students must complete all other course requirements for the Bachelor's degree, including the Education sequence, unless extraordinary circumstances warrant approval by the Department of Education. This approval must be obtained at the general conference required of all prospective student teachers during the semester preceding admission to Education 450 or 451. The date of the conference will be announced in Education classes and posted on the Department of Education bulletin board.

National Teacher Examination

A candidate for an elementary or secondary school teaching certificate in North Carolina must file evidence that the National Teacher Examination has been taken before a certificate may be issued. Both common and teaching area examinations must be taken by the applicant. Students should consult with the Department of Education for further details.

Teacher Placement

The Placement Office in the Division of Student Affairs in cooperation with the Department of Education provides placement services for qualified graduates. All students in the Education sequence are urged to complete their credentials since it is common practice for school administrators to contact the University for prospective candidates.

Curriculum Materials Center

Located in the J. Murrey Atkins Library, the Curriculum Materials Center contains current textbooks and related curriculum materials representing all subject areas and grade levels taught in the public schools. The Center receives approximately sixty education and related periodicals. A vertical file containing non-catalogued education materials is an integral part of the Center. The library is a government document depository; thus all federal government publications pertaining to education are available.

Psychological Testing Laboratory

The Psychology Department maintains a psychological testing laboratory in which students gain experience in the selection, administration, and evaluation of psychological and achievement tests. A library of literature on test instruments for student use is kept current.

Teaching Media

As part of the Education sequence, all students will be given laboratory experiences in teaching media. The latest audio-visual equipment and teaching media will be available for individual student familiarization. Instruction in the use, preparation and evaluation of teaching media as a functional aspect of teaching will be explored.

Professional Education Sequence

Elementary

Sophomore or Junior Year	Semester Hours
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Junior Year	
Education 303 Elementary Education I	3
Senior Year—Block Schedule	
Education 304 Philosophy of Education	3
Education 401 Elementary Education II	3
Psychology 301 Child Psychology	3
(Second semester of the senior year—first eight weeks)	
Education 450 Student Teaching: Elementary	6
(Second semester of the senior year—second eight weeks)	
Total—24	

Secondary

Sophomore or Junior Year	
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Senior Year—Block Schedule	
Education 304 Philosophy of Education	3
Education 402 Methods of Teaching in Secondary School	3
Psychology 302 Adolescent Psychology	3
(Second semester of the senior year—first eight weeks)	
Education 451 Student Teaching: Secondary	6
(Second semester of the senior year—second eight weeks)	
Total—21	

Course Requirements

Candidates who plan to teach in elementary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in one of the academic fields (a minimum of 27 semester hours).

(3) A sequence in Elementary Education: Education 201, 303, 304, 401 and 450; Psychology 202 and 301. Twenty-one semester hours of these courses may be counted as related work.

(4) Subject-matter requirements for teacher certification.

Course	Semester Hours
Art 201, 302	5
English 303, 304	5
Geography 101, 102	7
Health Education 409	2
History 201, 202	6
Mathematics 403	3
Music 207, 307	5
Physical Education 409	2
Political Science 200	3

Candidates who plan to teach in secondary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in the academic field in which they plan to teach.

(3) A sequence in Secondary Education: Education 201, 304, 402 and 451; Psychology 202 and 302.

(4) Related work approved by the major department.

(5) Subject-matter requirements for teacher certification.

	Semester Hours
English	36
Language (Grammar, composition, rhetoric, history and analysis of the English Language, etc.)	12
Literature (English and American Literature)	12
Language and Literature Skills (Reading, interpretation of literature, oral and written exposition, the library, and journalistic writing)	6
Electives from the above areas	6
Mathematics	30
Calculus and Analytic Geometry	9
Algebra	6
Geometry	3
Electives in Mathematics	12

The algebra shall consist of one course in modern abstract algebra and one in linear algebra.

Modern Foreign Language 30

Grammar, Composition, and Phonetics 9
Literature 9
Language Skills 6
(Understanding, speaking, reading, and writing)

Literature, History, and Civilization of country being studied 6

(The 30-hour requirement in a language assumes that one has had two or more high school units in that language when entering college.)

Science 48

(1) Common Foundation 24
Mathematics 6
Six semester hours each from three of the following: 18
Biology
Chemistry
Physics
Earth Science

(2) A concentration in one area 20
Biology
Chemistry
Physics
Earth Science

(3) Electives 4

Certification in the individual science areas should give depth sufficient to assure reasonable competence as a teacher in the subject of concentration. A program for certification in a particular area (Biology, Chemistry, Physics, or Earth Science) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

Social Science 42

(1) History—American and World 21
(2) From three or more of the following 21
(There should be about equal emphasis on all areas chosen)
Anthropology
Economics
Geography
Political Science
Sociology

A program for certification in individual areas (Anthropology, Economics, Geography, History, Political Science, or Sociology) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours.)

EDUCATION

201. INTRODUCTION TO EDUCATION. (3) An introductory course to acquaint students with the teaching profession. Considered are the role of the teacher, the clientele of the school, and the community. Emphasis placed on the historical and sociological orientation of the school in society.

303. ELEMENTARY EDUCATION I: ORGANIZATION AND CURRICULUM. (3) Prerequisites: Education 201, Psychology 202. Major consideration is given to the organization, administration, and curriculum of the elementary school. Emphasis placed on the role of the elementary school teacher in the total education program.

304. PHILOSOPHY OF EDUCATION. (3) Prerequisites: Education 201, Psychology 202. A study of the educational philosophies of the contemporary period and the basic assumptions upon which statements about modern education rest. Extensive readings in text and source materials.

401. ELEMENTARY EDUCATION II: METHODS AND MATERIALS. (3) Prerequisite: Education 303. Major consideration is given to the methods and materials used in teaching at the various grade levels in the elementary school. Emphasis placed on the preparation of lesson plans and units.

402. METHODS OF TEACHING IN SECONDARY SCHOOL. (3) Prerequisites: Education 201, Psychology 202. Aims, methods, and materials of teaching a subject at the secondary level. Also considered are the following: organization of the curriculum, pupil promotional patterns, and classroom management.

402-a English
402-b Foreign Languages
402-b-1 French
402-b-2 Spanish
402-b-3 German
402-c Mathematics
402-d Sciences
402-e Social Sciences

403. PRINCIPLES OF GUIDANCE. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to increase the teacher's knowledge and understanding of the meaning, scope, and prin-

ciples of guidance in the school setting. A survey course planned to give perspective for future work in guidance.

404. SEMINAR IN EDUCATIONAL RESEARCH. (2) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to assist teachers to conduct and evaluate research studies. Basic research techniques will be examined. Each student will develop a limited research project.

405. SEMINAR FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite: employment as an elementary school teacher or special permission of the Department of Education. Contemporary problems and issues confronting teachers in their actual school experience. The activities of the course will vary with the needs of the students.

407. AUDIO-VISUAL MEDIA. (3) Prerequisite: Open to all students with junior standing. The selection, use and evaluation of technological innovations in audio-visual media will be studied. Laboratory experiences in communication media will be emphasized.

450. STUDENT TEACHING: ELEMENTARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in an elementary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

451. STUDENT TEACHING: SECONDARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in a secondary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

ENGINEERING

Professor Barnette, Chairman; Associate Professors Dunkerley, Wayne; Assistant Professors Kim and Norem; Instructor Smith

The engineering department provides an undergraduate professional education in the fields of Electrical Engineering and Mechanical Engineering. The curricula are designed to serve both the potential graduate student who will pursue a career in research or teaching, and the student who will pursue a career as a professional engineer in industry, business, or consulting. Both of these objectives require a substantial curriculum content in the humanities, the physical sciences, the engineering sciences, mathematics, and engineering design.

The engineering curricula prescribed by the faculty of the

University of North Carolina at Charlotte give thorough attention to all of these essential areas of content. In order to accomplish this, a total of 139 semester hours of work is required for graduation. The curricula which are shown in detail on the following pages, are outlined as four year programs. Students who enter the University with strong college board scores, and qualify through the entrance examination in mathematics to enroll in Mathematics 141, can expect to schedule their work on an eight semester basis, as shown. Students who are required to enroll in Mathematics 103 and 104, on a basis of the entrance test in mathematics, will not take the courses exactly as listed, unless they begin their program in the summer and complete these preliminary mathematics requirements in advance of their first semester of regular study. Some students may need to take lighter loads than those which are shown, and to attend school one or more summer sessions, or an extra semester, to complete requirements. This is optional with the student, and each one is encouraged to take a load which is optimum for his individual case.

THE ELECTRICAL ENGINEERING CURRICULUM

The curriculum in Electrical Engineering is based upon a core of sequence courses in four branches of electrical science, namely: circuit theory, electric and magnetic field theory, electronics, and electro-mechanical devices. These sequences occur in the sophomore and junior years, except for the last named, which is in the senior year. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, mathematics courses, and supporting physical and engineering science courses parallel the four electrical science stems.

The electrical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology. At the same time, the student has an opportunity to develop a degree of technical specialization by means of these electives.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected to form a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Electrical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Engineering 102	2
	15		16

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EE 211 Networks	3	EE 212 Networks	3
EM 211 Mechanics	3	EE 252 Laboratory I	1
English 205	3	EM 216 Mechanics	3
	17	Economics 201	3
			18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
EE 311 Transients	3	EE 312 A.C. Circuits	3
EE 321 E. & M. Fields	3	EE 332 Electronics	3
EE 351 Laboratory II	1	EE 352 Laboratory III	1
ME 311 Thermodynamics I	3	ME 312 Thermodynamics II	3
Physics 311	3	Elective (Hum. or S.S.	3
Elective (Hum. or S.S.)	3	Elective (Hum. or S.S.)	3
	19		19

SENIOR YEAR

EE 421 E. & M. Fields	3	EE 442 Machinery	3
EE 431 Electronics	3	EE 452 Laboratory V	1
EE 441 Electromag. Devices	3	EE Electives	6
EE 451 Laboratory IV	1	Electives (Tech. or Hum.)	6
EE Elective	3		
Elec. (Tech. or Hum.)	3		16
	16		

Note: The 9 semester hours of Technical or Humanities Electives may be used:

1) To develop a particular area of interest within the humanities.
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology, etc.;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

* Another 200 level course in economics may be substituted with the consent of both departments.

EE 211. RESISTIVE NETWORKS I. (3) Prerequisite: Math 141. Introduction to linear oriented graphs. Kirchoff's voltage and current equations. Definition and properties of important subgraphs: seg, circuit, tree, cotree, etc. Formation of seg and circuit matrices; the fundamental seg and circuit matrices. Definition and criteria for forming the seg and circuit basis matrices. Characterization of the network elements. Combination of the seg, circuit, and terminal equations into the primary system. Formal derivation of the mesh, node, and branch systems of equations. Formulation of the secondary systems of equations by matrix techniques. Power and energy functions. Effective and average values of time functions. Three hours.

EE 212. RESISTIVE NETWORKS II. (3) Prerequisite: EE 211. Secondary systems of equations directly from the graph (mesh, branch, and node). Driving point functions. Network theorems: superposition, reciprocity, Thevenin's and Norton's equivalents, etc., Delta and wye equivalents of three terminal R-graphs. The v(t)-i(t) interrelations for four terminal R-graphs: open, and short circuit, cascade, and hybrid parameters. Balanced and symmetric networks: tee, pi, and lattice equivalents. Bartlett's bisection theorem. Image and scattering parameters, cascaded networks, insertion function, and attenuators. N-terminal R-graphs. Three hours.

EE 252. LABORATORY I. (1) Corequisite EE 212. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to illustrate the theory introduced in the paralleling or preceding courses. The laboratory sequence will be measurements-oriented and will develop increasing sophistication of experimental technique. Three hours.

EE 311. TRANSIENTS. (3) Prerequisite: EE 212. The study of the Laplace transform theorems, concepts, properties and techniques, and its application to networks. The formulation of network equations and the investigation of the transient and steady state solutions of these equations for networks with step, pulse, periodic, and sinusoidal driving functions. Introduction to complex variables, residues, and partial fractions. Initial conditions, switching and transition transients. The vector transform as an introduction to the sinusoidal steady state. Three hours.

EE 312. ALTERNATING CIRCUIT THEORY. (3) Prerequisite: EE 311. Analysis and investigation of sinusoidal circuits: series, parallel, network theorems, matching, coupled circuits, etc., mesh, branch and node equations of RLCM multimesh networks in vector notation, both through matrix formulation and direct formulation from the graph. The Fourier series and

its application to networks. Two and four terminal network equivalences, the methods for and the restrictions on their interconnections. Filter theory: conventional and image parameter methods. Three hours.

EE 321. INTRODUCTION TO ELECTROMAGNETIC FIELDS. (3) Prerequisite: EE 212. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations. Three hours.

EE 332. FUNDAMENTALS OF ELECTRONICS AND SEMICONDUCTORS. (3) Prerequisite: EE 311. A study of fundamental concepts and principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices: thyratrons, ignitrons, etc. Photoelectric devices. Amplifier and oscillator characteristics and their configurations. Three hours.

EE 351. LABORATORY II. (1) Prerequisites: EE 252, EE 311, and 321 parallel. A continuation of EE 252, involving experiments in the areas of circuit theory and fields. Three hours.

EE 352. LABORATORY III. (1) Prerequisites EE 312, and EE 332 parallel. A continuation of EE 351 involving experiments in the areas of circuit theory, electronics, and semiconductors. Three hours.

EE 391. PRINCIPLES OF ELECTRICAL ENGINEERING I. (4) Prerequisites: Physics 202, Mathematics 242. A study of the fundamental principles which underlie the analysis of electric, magnetic, and electronic devices. A study of the basic methods for analyzing electric and magnetic circuits for d.c., a.c. and transient modes of operation. Laboratory experiments related to these studies.

EE 392. PRINCIPLES OF ELECTRICAL ENGINEERING II. (4) Prerequisite: EE 391. A study of the principles of operation of electric, electronic and electromagnetic instruments, devices, and machines. Laboratory experiments related to these studies.

EE 400. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. (Variable credit 1-4 hours) Prerequisite: Senior standing in Electrical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional electrical engineering. Given at the senior level, the course

will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EE 411. NETWORK SYNTHESIS. (3) Prerequisite: EE 312. Positive real functions, their properties and methods of testing. Driving point synthesis of LC, RC, and RL networks into Foster and Cauer networks. One terminal pair RLC network synthesis using the Brune and Bott-Duffin methods. Realization of two terminal pair networks by ladders, Cauer networks, lattices and Darlington networks. Approximation methods. Three hours.

EE 412. NON-LINEAR ANALYSIS. (3) Prerequisite: EE 312. Solutions of non-linear problems using numerical methods, graphical methods, phase plane plots, analysis of singular points, and analytical techniques. The use of analogs and duals for writing equations. The use of the analog computer and digital computer. Three hours.

EE 421. ELECTROMAGNETIC WAVES. (3) Prerequisite: EE 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial lines and waveguides. Three hours.

EE 422. RADIATION AND MICROWAVE THEORY. (3) Prerequisite: EE 421. A study of radiation into free space; antenna theory. Microwave theory: components and junctions, methods of feeding, matching, terminations and generation. Microwave amplifiers and oscillators. Introduction to Laser theory. Three hours.

EE 431. ELECTRONICS. (3) Prerequisite: EE 332. A study of electronic and semiconductor devices: transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized transistor oscillator analysis. Three hours.

EE 432. COMPUTER ELECTRONICS. (3) Prerequisite: EE 431. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits. The introduction to microwave electronics, principles of electron devices including magnetrons, klystrons, traveling wave tubes and particle accelerators. Three hours.

EE 434. SOLID STATE ELECTRONICS. (3) Prerequisite: Physics 311. Band structure of solids. Electric analog for an array of atoms. Electron transport mechanisms in conduction, diffusion, tunneling. Electronic models of varactors, tunnel diodes, and solid state microwave devices.

EE 441. ELECTROMAGNETIC DEVICES. (3) Prerequisites: EE 312, EE 321. Magnetic circuits. Transformer principles, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns. Three hours.

EE 442. ELECTRIC MACHINERY. (3) Prerequisite: EE 441. Direct-current machines, induction machines. Machines in control systems. Synchronous machines. Fractional horsepower motors. Three hours.

EE 446. ELECTRIC POWER SYSTEM ANALYSIS. (3) Prerequisites: EE 312, EE 321. Transmission lines: constants, circuit representations, equations, circle diagrams. System representations, network equations and solutions. Load flow studies, economic operation, fault studies, stability studies. Three hours.

EE 451. LABORATORY IV. (1) Prerequisites: EE 312, EE 332, EE 352. A continuation of EE 352 involving experiments in the areas of circuit theory, electronics, and electromagnetics. Three hours.

EE 452. LABORATORY V. (1) Prerequisite: EE 451. A continuation of EE 451 involving experiments in electromagnetics, devices, and machines. Three hours.

EE 472. AUTOMATIC CONTROL SYSTEMS. (3) Prerequisite: EE 431. A basic study of closed-loop systems utilizing frequency response analysis. Design techniques are developed for desired performance criteria. Electrical, mechanical, and hydraulic systems are considered. Analog computer use in system studies. Three hours.

THE MECHANICAL ENGINEERING CURRICULUM

The curriculum in Mechanical Engineering is based upon sequences of engineering science courses in heat power, engineering mechanics, and mechanical design. These occur principally in the sophomore and junior years. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, physical science courses, and electrical science courses supplement the mechanical engineering science and design stems through the junior year.

The mechanical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected from a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Mechanical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Engineering 102	2
	15		16

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EM 211 Mechanics I	3	EM 321 Theory of Machines	3
ME 261 Engin. Materials	3	EM 214 Mechanics of Mat.	3
E 113 Graphical Analysis	1	Economics 201	3
English 201 or 205	3		17
	18		

JUNIOR YEAR

Mathematics 371	3	Mathematics 372 or 322	3
ME 311 Thermodynamics I	3	ME 312 Thermodynamics II	3
ME 312 Fluid Mechanics	3	ME 421 Design I	3
ME 351 Laboratory I	1	ME 352 Laboratory II	1
EE 391 Prin. of EE I	4	Elective (Hum. or S.S.)	3
Elective (Hum. or S.S.)	3	EE 392 Prin. of EE II	4
	17		17

SENIOR YEAR

ME 411 Heat Transfer I	3	ME 418 Heat Transfer II	3
ME 422 Design II	3	ME 452 Laboratory IV	1
ME 451 Laboratory III	1	ME Electives*	7
ME Elective*	3	Elective (Tech. or Hum.)	6
Physics 311	3		17
Elect. (Tech. or Hum.)	3		
Elective (Hum. or S.S.)	3		
	19		

* Two of the ME Electives are to be chosen from the design area and one from the heat power area, or vice versa.

Note: The 9 semester hours of Technical and Humanities Electives may be used:

1) To develop a particular area of interest within the humanities;
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

MECHANICAL ENGINEERING

ME 261. ENGINEERING MATERIALS. (3) Prerequisite: Sophomore standing or permission of the department. A study of the engineering design properties of materials. The relation of composition, structure, and process treatment of materials to these properties. A survey of the common metallic and nonmetallic materials with emphasis upon engineering applications.

ME 311. THERMODYNAMICS I. (3) Prerequisites: Phys. 202, Math 242. First and second law of thermodynamics. Work and heat. Entropy and Clausius inequality. Ideal and real gases. Nonreactive mixtures of gases. Availability and irreversibility. Vapor and gas power cycles.

ME 312. THERMODYNAMICS II. (3) Prerequisite: ME 311. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to statistical thermodynamics.

ME 321. THEORY OF MACHINES. (3) Prerequisite: EM 211. Application of dynamics to mechanical systems. Static-force analysis. Dynamic-force analysis of plane motion and space mechanisms.

ME 351. ME LAB I. (1) Corequisites: ME 261, ME 311, EM 214. Theory and principles of instrumentation. Measurement of thermodynamic properties, flow properties, and strain. Preparation of Engineering report. No lecture hours. One laboratory period of three hours a week.

ME 352. ME LAB II. (1) Prerequisite: ME 351. Corequisites: ME 312 and EM 312. Continuation of ME 351. Analysis of simple systems. No lecture hours. One laboratory period of three hours a week.

ME 400. SPECIAL TOPICS IN MECHANICAL ENGINEERING. (Variable credit 1-4) Prerequisite: Senior standing in Mechanical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional mechanical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science

stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ME 411. HEAT TRANSFER I. (3) Prerequisites: Math 371, EM 312, ME 311. Analysis of steady state and transient heat conduction. Heat transfer by radiation. Radiation networks. Gaseous radiation exchange.

ME 412. GAS DYNAMICS. (3) Prerequisites: ME 311, EM 312. Compressible flow equations, isentropic flow, normal shock waves. Fanno and Rayleigh line flows.

ME 413. EXPERIMENTAL STRESS ANALYSIS. (3) Prerequisite: EM 214. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on electrical strain gages and instrumentation; brittle coatings and photoelasticity.

ME 414. REFRIGERATION. (3) Prerequisite: ME 311. Vapor compression, absorption and low temperature refrigeration cycles and systems.

ME 415. ENERGY CONVERSION I. (3) Prerequisites: ME 312, EM 312, ME 411. Application of the basic concepts of thermodynamics, heat transfer and fluid flow to power plant problems.

ME 416. ENERGY CONVERSION II. (3) Prerequisite: ME 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, therminoic converters, solar and fuel cells.

ME 418. HEAT TRANSFER II. (3) Prerequisite: ME 411. Natural and forced convection based upon boundary layer theory. Heat transfer in fluids with change in phase. Introduction to mass transfer.

ME 421. DESIGN I. (3) Prerequisite: ME 322. Senior standing. Technical application of the basic principles of the mechanical sciences to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

ME 422. DESIGN II. (3) Prerequisite: ME 421. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

ME 424. MECHANICAL VIBRATIONS. (3) Prerequisites: EM 212, Math 371. Study of vibratory motion, including one or more degrees of freedom, with and without damping.

ME 451. ME LAB III. (1) Prerequisite: ME 352 and Senior standing. The selection of appropriate instrumentation and the experimental analysis of a predetermined small scale engineering system. No lecture hours. One laboratory period of three hours a week.

ME 452. ME LAB IV. (1) Prerequisite: ME 451. Continuation of ME 451.

ME 472. AUTOMATIC CONTROLS. (3) Prerequisite: Senior standing. Closed-loop control systems. Application of transfer function analysis.

ENGINEERING ORIENTATION AND GRAPHICS

E 100. INTRODUCTION TO ENGINEERING. (1) Survey of the professional fields in engineering, the work of the engineer, requirements in training and character, professional ethics. A preview of opportunities for careers in engineering.

E 102. INTRODUCTION TO ENGINEERING ANALYSIS. (2) An introduction to the engineering approach to problem solving. Use of elementary mathematics and statistics, curve plotting, data analysis, slide rule operation, and other engineering tools and techniques to solve problems in all branches of engineering. Elements of engineering drawing. One one-hour and one two-hour session per week.

E 113. GRAPHICAL ANALYSIS. (1) Prerequisite: E 102. Application of graphical methods to solve mechanical engineering problems. Graphical solution of vector equations. Graphic statics. Graphical integration and differentiations. Drawing of machine elements. One three-hour laboratory per week.

ENGINEERING MECHANICS AND ENGINEERING MATERIALS

EM 211. MECHANICS I. (3) Corequisite: Math 142. Statics, forces, moments and couples. Resultants of forces. Systems in mechanical equilibrium. Elements of kinematics. Introduction to dynamics. Motion of particles and rigid bodies.

EM 214. MECHANICS OF MATERIALS. (3) Prerequisite: EM 211. Dynamic concepts of work, energy, impulse, and momentum. Elements of continuum mechanics. Properties of solid surfaces and volumes. Hydrostatics and hydrodynamics. Stress-strain relationships in solid continua. Shear and moment diagrams. Torsion, stress, strain, bending, and deflection in structural elements.

EM 216. PHYSICAL PROPERTIES OF MATERIALS. (3) Prerequisite: EM 211. Completion of dynamics topics. Work and

energy. Conservation of energy and momentum. Statics and dynamics of submicroscopically discontinuous materials. Principles of atomic and crystal structure. Solid solutions and elementary alloying theory. The nature of electrical, magnetic, and other physical properties of conductors, insulators, and semiconductors. The dependence of these properties upon structure and composition.

EM 312. FLUID MECHANICS. (3) Prerequisites: ME 311, Math 242. Properties of fluids, fluid statics, derivation and application of equations for conservation of mass, energy, linear momentum and angular momentum. Dimensional analysis and dynamic similitude. Viscous effects. Ideal fluid flow.

EM 461. PHYSICAL METALLURGY I. (3) Prerequisites: ME 261 or EM 216, ME 311. Types and classifications of materials. Atomic and crystal structure. Physical properties. Phase diagrams, alloy theory, kinetics of metallurgical processes, and phase transformations.

EM 462. PHYSICAL METALLURGY II. (3) Prerequisite: EM 461. Deformation and fracture theory. Mechanical properties, strengthening concepts, heat treating and property control. Design, fabrication, and application considerations.

CIVIL ENGINEERING

CE 211. SURVEYING I. (3) Prerequisite: Mathematics 141. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; construction surveys; earthwork computations; route surveys and design; simple, compound, parabolic, and spiral curves; chaining equations. One lecture hour, two problem solving hours, and one laboratory period of three hours a week.

CE 212. SURVEYING II. (3) Prerequisite: Civil Engineering 211. Continuation of Civil Engineering 211. One lecture hour, two problem solving hours and one laboratory period of three hours a week.

Review Class for North Carolina Engineering Registration Examination

The forty-two hours of work in this course include a review of the fundamentals of engineering.

ENGLISH

Professor Wallace, Chairman; Associate Professors McCall, Moose, Nicholson; Assistant Professors Ellis, Mason, Shapiro;

Instructors Atwell, Bryan, Cook, Foster, Gatlin, Hartog, Stewart, Valentine

A major in English leading to the B.A. degree (except for students in the elementary teachers certification program) consists of 30 hours of courses above English 102. Required courses are 201, 202 (6); Shakespeare (3); one English and one American period course (6); one upper division course in language or composition (3); the Senior Colloquium (3); and 9 additional hours within the department. Majors in English must take 3 hours in the history of England. Related work consists of 15 semester hours.

A major in English for students in the elementary teachers certification program consists of 24 hours of English beyond English 102, including English 201, 202 (6); Shakespeare (3); English Grammar (3); one English and one American period course (6); the Senior Colloquium (3); and 3 additional hours within the department. Majors in the elementary certification program must take 3 hours in the history of England or of the United States. Related work consists of 15 hours.

101. ENGLISH COMPOSITION. (3) Intensive practice in theme writing, especially exposition, and an introduction to scientific study of the language. Brief review of grammar.

102. ENGLISH COMPOSITION. (3) Prerequisite: English 101 or advanced placement. Critical writing, collateral reading, and introduction to literary study.

201. ENGLISH LITERATURE. (3) Prerequisite: English 102. Intensive study of the masterpieces of British literature in chronological sequence before 1800. Not open to students with credit for English 205.

202. ENGLISH LITERATURE. (3) Prerequisite: English 201 or 205. British literary masterpieces since 1800.

203. MASTERPIECES OF MODERN FICTION. (3) Prerequisite: English 201 or 205. Readings in selected novels and short stories written since 1850. Not open to majors.

204. MAJOR AMERICAN WRITERS. (3) Prerequisite: English 201. Extensive readings in six to eight authors. Recommended for non-English majors who are working for teachers certificates. Not open to majors.

205. READINGS IN WESTERN LITERATURE. (3) Prerequisite: English 102. Ancient, British, and American writings, emphasizing basic themes and literary forms. Not open to students with credit for English 201.

NOTE: Prerequisite for 300 and 400 level courses: six semester hours of English on the 200 level, unless otherwise specified.

301. MASTERPIECES OF EUROPEAN LITERATURE. (3) Reading of complete Greek and Latin works in translation: epic, drama, history, oratory, and lyric poetry.

302. MASTERPIECES OF EUROPEAN LITERATURE. (3) Readings in Dante, Erasmus, Montaigne, Moliere, Dostoevsky, Tolstoy, and others.

303. CHILDREN'S LITERATURE. (2) Critical study of representative reading materials and approaches to literature appropriate for elementary school children. Does not count toward an English major.

304. READING AND THE LANGUAGE ARTS. (3) Emphasis on oral and written communication, with attention also to the teaching of reading; appraisal of current programs and methods. Does not count toward an English major.

305. ADVANCED COMPOSITION. (3) The writing of essays, criticisms, various forms of exposition, and short narratives.

311. CHAUCER. (3) *The Canterbury Tales, Troilus and Criseyde,* and selected minor works.

312. SHAKESPEARE. (3) Twelve of his major plays from the comedies, tragedies, and histories.

313. MILTON. (3) The major poems and selections from the minor works.

321. THE EARLIER SEVENTEENTH CENTURY. (3) The major writers from the beginning of the century through Milton and Bunyan.

323. ENGLISH LITERATURE, 1660-1785. (3) Poetry and prose from Dryden through Johnson; collateral readings in drama and the novel.

325. THE ROMANTIC ERA, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge, and other major poets.

326. THE VICTORIAN ERA, 1832-1900. (3) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, and Newman.

331. THE ENGLISH LANGUAGE. (3) Origins and development of the English language and its present usage.

332. ENGLISH GRAMMAR. (3) English grammar with particular emphasis on modern usage; the relations of grammar and composition.

341. AMERICAN LITERATURE, 1820-1890. (3) The chief writers and literary movements from Irving through Whitman.

342. AMERICAN LITERATURE SINCE 1890. (3) The chief writers and movements from Howells to the present.

343. THE AMERICAN NOVEL OF THE NINETEENTH CENTURY. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, with primary attention to approximately eight or ten representative novels.

344. THE AMERICAN NOVEL OF THE TWENTIETH CENTURY. (3) Major novelists and traditions from the emergence of naturalism to the present, with primary attention to approximately eight or ten representative novels.

401. LITERARY CRITICISM. (3) Prerequisite: fifteen hours of English. The major schools and individual critics; readings in the history of criticism and composition of critical papers.

413. ENGLISH POETRY AND PROSE OF THE SIXTEENTH CENTURY. (3) The major works, excluding drama, More through Spenser, with attention to the development of the lyric.

421. THE ENGLISH NOVEL BEFORE SCOTT. (3) Major writers and traditions, Defoe through Jane Austen.

422. THE ENGLISH NOVEL FROM SCOTT THROUGH THE VICTORIANS. (3) Major writers and traditions through Hardy.

423. THE MODERN BRITISH NOVEL. (3) Representative British novels showing the philosophies and techniques affecting British fiction, from Hardy to the present.

431. ENGLISH DRAMA BEFORE 1642. (3) Representative plays with emphasis on the chief Elizabethan, Jacobean, and Caroline dramatists from Lyly to Ford, excluding Shakespeare.

441. COLONIAL AND EARLY AMERICAN LITERATURE. (3) American literature from Colonial times through Washington Irving.

450. MODERN POETRY. (3) Chief British and American poets of this century.

451. MODERN DRAMA. (3) Representative British and American plays from Shaw to the present.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental Chairman. Lectures and student reports chronologically arranged.

FOREIGN LANGUAGES

Professors Turner, Chairman, Macy; Associate Professors Hoyle, Slechta; Assistant Professors Gabriel, Littlejohn, Lopez, Saman; Instructors Brooks, Crocker, Gaddy, Sabates (part-time)

Programs in each of the several foreign languages offered are designed to give a student competence in four skills—understanding, speaking, reading, and writing the given language, to acquaint him with the culture and civilization of the country or countries where that language is spoken, especially their literature, and to give him some understanding of the people who speak it. Major programs include advanced linguistic analysis of sound systems and structure and are designed to prepare students for certification by the North Carolina State Department of Public Instruction or graduate work in the major field.

Placement

The Department of Foreign Languages will recommend the placement of a student in a class of a level commensurate with his demonstrated competence at the time of enrollment considered together with his prior language training or experience. (See pages 47-49.)

Laboratory

All foreign language courses at the 100 and 200 level, as well as those numbered 301 and 302, meet for three class hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

See pages 47-49 for general foreign language requirements for degree candidates.

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Science[1]	4	Science	4
Foreign Language[2]	3	Foreign Language	3
	16		16

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 202 (203)	3
Social Science	3	Social Science	3
Science	4	Science	4
Elective	3	Elective	3
Foreign Language	3	Foreign Language	3
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language	3	Foreign Language	3
Foreign Language	3	Foreign Language	3
Elective	3	Elective	6
Elective	3	Related Work	3
Related Work[3]	3	Related Work	3
	15		18

SENIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 4xx	3	Foreign Language 4xx[4]	3
Foreign Language 4xx	3	Foreign Language 4xx	3
Elective	3	Elective	3
Related work	3	Elective	3
Related Work	3	Related Work	3
	15		15

Total Hours: 127

[1] Total required: 16 hours; at least 4 hours from each group:
Group A: Chemistry, Physics, Geology, Geography 101;
Group B: Biology, Psychology 201.

[2] No credit towards a major will be allowed for any 101 or 102 course.

[3] Related Work totaling 18 hours, to be approved by the departmental chairman, may be selected from: Fine Arts, History, English Literature, Linguistics, Political Science, Economics, Anthropology, Philosophy, or additional science courses.

[4] Students preparing to teach in the public secondary schools should complete 400 level course requirements for major prior to the semester in which they are to take the Block Schedule in Education (See page 75.)

FRENCH

A major in French leading to the B.A. degree consists of French 201, 202, 301, 302, 303, 304, 331, and at least 12 hours on the 400 level, including either 491 or 492. In addition, eighteen hours of related work approved by the department will be required. Teaching candidates with a major in French must also take French 309.

101. ELEMENTARY FRENCH. (3) Fundamentals of French grammar and phonetics, reading, and conversation. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY FRENCH. (3) Prerequisite: French 101, or permission of the department. Continuation of French 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE FRENCH. (3) Prerequisite: French

102, or permission of the department. Review grammar, with composition and conversation based upon readings on French culture and civilization. Three class hours and two hours of laboratory work per week.

202. INTERMEDIATE FRENCH. (3) Prerequisite: French 201, or permission of the department. Review grammar, composition, and conversation, based upon readings in French prose. Three class hours and two hours of laboratory work per week.

301. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: French 202, or permission of the department. For prospective teachers of French and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: French 202, or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF FRENCH LITERATURE TO 1800. (3) Prerequisite: French 202, or permission of the department. Selected readings in prose and poetry from the Middle Ages to 1800. Emphasis on each literary movement. Book reports on collateral readings.

304. SURVEY OF FRENCH LITERATURE SINCE 1800. (3) Prerequisite: French 202, or permission of the department. Continuation of French 303. Book reports on collateral readings.

309. FRENCH CIVILIZATION. (3) Prerequisite: French 202, or permission of the department. Composition and conversation based on readings in French culture, civilization, art, and literature. Three class hours per week.

331. FRENCH PHONETICS. (3) Prerequisite: French 202, or permission of the department. Study of the sounds of the French language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week.

401. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

403. FRENCH LITERATURE OF THE NINETEENTH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

405. THE AGE OF ENLIGHTENMENT. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

408. THE CLASSICAL PERIOD. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

414. FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

416. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Special problems in the major field. Collateral readings and term papers. Either 491 or 492 is required of all French majors.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Intensive study of special areas or literary figures in the major field. Either 491 or 492 is required of all French majors.

GERMAN

101. ELEMENTARY GERMAN. (3) Fundamentals of German grammar and phonetics, reading, and conversation. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY GERMAN. (3) Prerequisite: German 101 or permission of the department. Continuation of German 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE GERMAN. (3) Prerequisite: German 102 or permission of the department. Review grammar, composition, and conversation, based upon readings in German prose. Three class hours and two hours of laboratory work per week.

301. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: German 202 or permission of the department. For prospective teachers of German and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED GERMAN GRAMMAR, COMPOSITION,

AND CONVERSATION II. (3) Prerequisite: German 202 or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports on collateral readings.

304. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. German literature since classicism. Book reports on collateral readings.

309. GERMAN CIVILIZATION. (3) Prerequisite: German 202 or permission of the department. Composition and conversation based on readings in the culture, civilization, art, and literature of German-speaking countries.

311. SELECTED READINGS IN GERMAN LITERATURE I. (3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

312. SELECTED READINGS IN GERMAN LITERATURE II. (3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

321. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

322. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

331. GERMAN PHONETICS. (3) Prerequisite: German 202 or permission of the department. Study of the sounds of the German language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week. Transcription exercises and student recordings.

401. GERMAN CLASSICISM. (3) Prerequisite: two 300-level courses or permission of department. Storm and Stress. Early classicism. Book reports on collateral readings.

402. GERMAN ROMANTICISM. (3) Prerequisite: two 300-

level courses or permission of department. Late classicism and romanticism. Book reports on collateral readings.

407. GERMAN POETRY FROM HOELDERLIN TO THE PRESENT. (3) Prerequisite: two 300-level courses or permission of department. An analysis of the chief lyric poets, literary movements, and types of German poetry.

414. TWENTIETH CENTURY GERMANY AS REFLECTED IN LITERATURE. (3) Prerequisite: two 300-level courses or permission of department. Political and social events from World War I to the present day, as reflected in German literature. Book reports on collateral readings.

RUSSIAN

101. ELEMENTARY RUSSIAN. (3) Fundamentals of Russian grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three class hours and two laboratory periods a week.

102. ELEMENTARY RUSSIAN. (3) Prerequisite: Russian 101. Continuation of Russian 101. Graded readings. Three class hours and two laboratory periods a week.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, 309 or 310, and 12 hours of Spanish courses on the 400 level, which must include Spanish 491. Students who plan to teach in public secondary schools must also take Spanish 331. Eighteen hours of related work will be required.

101. ELEMENTARY SPANISH. (3) Introduction to Spanish, with emphasis on auditory comprehension, oral production and control of structure. Three hours of class and two hours of laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY SPANISH. (3) Continuation of Spanish 101, with greater attention to reading and writing. Three hours of class and two hours laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 102 or permission of department. Reinforcement and expansion of skill mastery developed in elementary courses on basis of selected readings and analysis of structure. Three hours of class and two hours laboratory per week.

202. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 201. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish-American literature. Three hours of class and two hours of laboratory per week.

301. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of the department. For prospective teachers of Spanish and students who want intensive oral and written work in the language. Both written and oral composition. Reports on collateral reading. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

302. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of department. Advanced structural analysis and oral and written composition. Reports of collateral readings. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

303. INTRODUCTION TO SPANISH LITERATURE I. (3) Prerequisite: Spanish 202 or permission of department. Reading and analysis of representative master works of Spanish literature from its origins through the Golden Age. Course conducted in Spanish.

304. INTRODUCTION TO SPANISH LITERATURE II. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 303 with emphasis on literature of the nineteenth and twentieth centuries. Course conducted in Spanish.

309. SPANISH CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An overview of the cultural heritage of peninsular Spain. Lecture, discussion, recitation on basis of assigned readings. Course conducted in Spanish.

310. SPANISH AMERICAN CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An introduction to the cultural heritage of the eighteen Spanish American countries. Lecture, discussion, recitation on the basis of assigned readings. Course conducted in Spanish.

331. SPANISH PHONETICS. (3) Prerequisite: Spanish 202 or permission of department. Detailed analysis of description and production of Spanish sounds. Practical exercises to include phonetic transcription and recordings. Two hours of class and two hours of laboratory a week.

401. MODERN SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of the department. Survey of peninsular literature from *costumbrismo* through the Generation

of 1898. Lectures, discussions and reports on basis of extensive collateral reading. Course conducted in Spanish.

402. CONTEMPORARY SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of department. Treatment of major literary developments from the Generation of 1898 to the present day. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

405. THE GOLDEN AGE OF SPANISH LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. El Lazarillo through El Criticon. Lecture, discussion and reports on basis of extensive collateral reading. Course conducted in Spanish.

406. THE GOLDEN AGE OF SPANISH LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Study of works of the leading dramatists and poets of the period with emphasis on Lope, Tirso de Molina, Ruiz de Alarcon and Calderon. Lectures, discussions and reports on basis of extensive collateral readings. Course conducted in Spanish.

407. SPANISH LITERATURE OF THE MIDDLE AGES AND RENAISSANCE. (3) Prerequisite: two 300 level courses or permission of department. Lectures, discussions and reports on basis of extensive collateral readings.

409. SPANISH AMERICAN LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. Survey of Spanish American literature from the colonial period through Romanticism. Lectures, discussion and reports on the basis of assigned readings. Course conducted in Spanish.

410. SPANISH AMERICAN LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Introduction to the literature of the eighteen Spanish American countries from Modernism through the contemporary period. Lectures, discussion, and reports on the basis of assigned readings. Course conducted in Spanish.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Comprehensive review of the major field.

492. SELECTED READINGS IN SPANISH. (3) Prerequisite: two 300 level courses of permission of department. Consideration in depth of a predetermined author or literary movement. Course conducted in Spanish.

GEOGRAPHY

Instructors Clay, Gibbs

101. PHYSICAL GEOGRAPHY. (4) Land forms, mineral resources, climate, vegetation, soils, and water from the point of view of their significance to economic activities. Three lecture hours and one laboratory period of two hours a week.

102. REGIONAL WORLD GEOGRAPHY. (3) Regional geography dealing with various peoples of the earth and how they and their activities are influenced by topography, climate, and natural resources. Three lecture hours a week.

201. ECONOMIC GEOGRAPHY. (3) Prerequisite: Geography 101 or Geography 102. Study of the products of agriculture, commerce and industry and the conditions which affect their production, exchange and consumption.

202. ELEMENTARY CARTOGRAPHY. (3) Prerequisite: Geography 101. Emphasis to be focused on tools of map making, map design and construction and the interpretation of aerial photographs and topographic maps. Two lecture hours and one laboratory period of two hours a week.

301. GEOGRAPHY OF LATIN AMERICA. (3) Prerequisite: Geography 101 or Geography 102. Basic human and physical differences from place to place which affect economic, social, and political conditions. Cultural and economic relations with Europe and the United States. Three lecture hours a week.

302. GEOGRAPHY OF NORTH AMERICA. (3) A study of climatic and other physical features of North America and their influence on the economic and cultural development of the United States and Canada.

303. GEOGRAPHY OF EUROPE. (3) A study of geographic conditions and their relationship to economic, social and political problems of Europe west of the Soviet Union.

310. HISTORICAL GEOGRAPHY OF ANGLO-AMERICA. (3) A study of the evolution of existing geographical patterns in the United States by examining the geography of selected historical periods.

311. POLITICAL GEOGRAPHY. (3) The concepts of Political Geography as developed through world regional studies of political phenomena as influenced by geographical features. Contemporary problems in international affairs will be considered.

312. URBAN GEOGRAPHY. (3) A study of the distribution, internal structure and functions of various types of urban developments.

GEOLOGY

Instructors Clay, Gibbs

201. PHYSICAL GEOLOGY. (4) The nature and occurrence of rocks and minerals, together with crustal features of the earth's surface. Emphasis on earth phenomena. Three lecture hours and one laboratory period of two hours a week.

202. HISTORICAL GEOLOGY. (4) Prerequisite: Geology 201, Geography 101, or Biology 101. Emphasis on stratigraphic and fossil history of the earth as found in the earth's crust together with the necessary information on both plant and animal kingdoms to trace the evolution of life down through the ages. Three lecture hours and one laboratory period of two hours a week. Two or more one-day field trips to be arranged.

301. MINERALOGY. (4) Prerequisites: Chemistry 102; Geology 201. Identification of the common and economically important minerals by means of the physical properties; chemical and blow-pipe tests. Principles of crystallography. Three lecture hours and one laboratory period of three hours a week.

302. GEOMORPHOLOGY. (4) Prerequisite: Geology 201. Major earth features and their origin with particular reference to North America. Three lecture hours and one laboratory period of two hours a week.

HEALTH EDUCATION

Instructor Murphy

101. HEALTH EDUCATION. (1) A general introductory course. Basic ideas of human anatomy, physiology, and chemistry are applied toward an understanding of human health problems. Two lecture hours a week.

409. HEALTH EDUCATION LABORATORY. (2) Prerequisite: Education 303. Health instruction, principles of health teaching for the elementary grades.

HISTORY AND POLITICAL SCIENCE

Professors Rieke, Chairman, Abernathy*, Hall, Winningham; Associate Professor Blackwelder; Assistant Professors Jamgotch, Morrill, Ploger, Robbins; Instructors Brantley, Brenner, Fowler, Perzel, Randazzo, Walker

HISTORY

A major in History leading to the B.A. degree, except for students in the elementary certification program, consists of 32

* On leave of absence for academic year 1966-1967.

semester hours of history, including Modern Western Civilization (101-102), American History (201-202), and Tutorial in History (491). Related work consists of 15 semester hours.

A major in History leading to the B.A. degree for students in the elementary certification program consists of 27 hours of history, including Modern Western Civilization 101-102) and American History (201-202). Related work consists of 21 hours as outlined in the general requirements of the elementary certification program.

Certification in history (Secondary School Teaching) is made possible by satisfactory completion of a major.

Students majoring in history, who plan to be certified in both history and social studies (Secondary School Teaching), must complete in addition to their requirements for a history major, 21 semester hours in three or more of the following disciplines: anthropology, economics, geography, political science, sociology. Fifteen of these hours in two of these disciplines may be counted for related work.

Except by special permission, no student may enroll in a 300-400 level course without Junior-Senior standing.

101. MODERN WESTERN CIVILIZATION TO 1815. (3) This course commences with a broad survey of Ancient and Medieval contributions to Modern Western Civilization and then treats intensively the development of Western Civilization from the Renaissance to 1815.

102. MODERN WESTERN CIVILIZATION FROM 1815 TO THE PRESENT. (3) Prerequisite: History 101. Continuation of History 101 with greater emphasis on developments outside the Atlantic community of Western Civilization.

201. AMERICAN HISTORY. (3) Survey of American history from the earliest times to 1865.

202. AMERICAN HISTORY. (3) Survey of American history from 1865 until the present.

303. HISTORY OF GREECE. (3) A brief study of the Ancient Near East followed by an intensive study of Greece to 332 B. C.

304. HISTORY OF ROME. (3) From the beginning of civilization in Italy to the reign of Justinian and the decline of the Empire in the West.

305. ANCIENT HISTORY. (3) From the earliest civilizations until the fourth century A.D.

306. MEDIEVAL HISTORY. (3) Political and cultural developments from the late Roman Empire until the Renaissance.

307. RENAISSANCE AND REFORMATION. (3) The intellectual and religious transformations of the early modern period and their political repercussions, 1300-1648.

311. RUSSIAN HISTORY. (3) Survey of Russian history until 1825.

312. RUSSIAN HISTORY. (3) Survey of Russian history from 1825 until the present.

317. NINETEENTH CENTURY EUROPE, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna. Emphasis will be placed on liberalism, nationalism, imperialism, and the diplomatic agreements leading to World War I.

318. TWENTIETH CENTURY EUROPE, 1914 TO THE PRESENT. (3) A review of the causes and results of World War I followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II, and the post-war period.

333. AMERICAN ECONOMIC HISTORY. (3) Prerequisite: consent of department. Development of a national economy, including monetary and banking problems, industrialization, and problems of labor and agriculture.

334. AMERICAN LABOR HISTORY. (3) Prerequisite: consent of department. Life and thought of American workingmen from the colonial period to the present, with attention to both the individual and to the development of labor organizations.

336. ORIGINS OF THE AMERICAN CONSTITUTION. (3) Prerequisite: History 201 or 202. The historical and philosophical background which led to the adoption of the American Constitution. Emphasis is placed on the Constitution's heritage from the Enlightenment, and the English and Colonial background. The course traces the writing and development of the Constitution through the Marshall Court.

339. HISTORY OF NORTH CAROLINA. (3) Prerequisite: History 201 and consent of department. Emphasis on the colonial developments and on the constitutional, educational and transportation developments of the ante-bellum period.

340. THE FRONTIER IN AMERICAN HISTORY. (3) A study of the influence of the moving frontier line on the historical development of the United States. Emphasis will be placed on the trans-Mississippi western United States. For comparative purposes some considerations will be given to other world frontiers.

343. COLONIAL AMERICA. (3) Prerequisite: History 201. Colonial history from the discoveries to 1763.

344. THE AMERICAN REVOLUTION AND EARLY NATION. (3) Prerequisite: History 201. The achievement of independence and the formation of a national government, 1763-1800.

361. BRITAIN TO 1485. (3) Survey of British history with emphasis on institutional, cultural, economic, and imperial developments.

362. MODERN BRITAIN, 1485-1789. (3) Continuation of History 361 with some treatment of the British Empire.

363. MODERN BRITAIN AND THE BRITISH EMPIRE SINCE 1789. (3) Continuation of History 362 with greater emphasis on the Empire and Commonwealth.

401. THE AGE OF ABSOLUTISM. (3) The problems of statecraft in the major continental countries, with some emphasis on cultural developments, 1648-1789.

402. FRENCH REVOLUTION AND NAPOLEON. (3) The changes in French politics and society and their effect on the Western World, 1789-1815.

417. EUROPEAN DIPLOMATIC HISTORY, 1756-1848. (3) A survey of the major developments in European diplomacy from the Diplomatic Revolution to the revolutions of the mid-nineteenth century.

418. EUROPEAN DIPLOMATIC HISTORY, 1848 TO THE PRESENT. (3) A survey of the major developments in European diplomacy beginning with the revolutions of the mid-nineteenth century.

431. AMERICA IN CRISIS, 1824-1860. (3) Prerequisite: History 201. A consideration of the new American nation in crisis. Attention is given to the development of nationalism under Jackson, the expansion of the new nation, the growth of sectionalism, and the events leading to secession.

432. CIVIL WAR AND RECONSTRUCTION, 1860-1877. (3) Prerequisite: History 201 or 202. A study of the American people in war and post-war adjustment. Emphasis is placed on the political, social, and economic conditions of the North and South during the Civil War and Reconstruction period.

433. AMERICAN SOCIAL AND INTELLECTUAL HISTORY TO 1860. (3) Prerequisite: History 201. Development of American social institutions and thought from the beginnings to the Civil War. The course is conducted as a colloquium, combining

lectures, discussions, extensive reading, and oral reports and a research paper by each student.

434. AMERICAN SOCIAL AND INTELLECTUAL HISTORY SINCE 1860. (3) Prerequisite: History 202. Continuation of History 403 from the Civil War to the present.

461. TUDOR ENGLAND, 1485-1603. (3) Treatment in depth of the English Reformation, the English Renaissance, and the creation of English naval and economic power.

462. STUART ENGLAND, 1603-1714. (3) Treatment in depth of the socio-economic and political phases involved in the Civil War, Restoration and Glorious Revolution, and International and Colonial involvement.

491. TUTORIAL IN HISTORY. (2) Prerequisite: consent of department. Required of all history majors. Seminar in historical method, bibliography, and purpose of historical writing. A major research paper under the direction of a staff member.

492. SEMINAR IN HISTORY. (3) Prerequisite: consent of department. An intensive examination of a subject in History to be offered as special circumstances require.

POLITICAL SCIENCE

A major in Political Science leading to the B.A. degree consists of 27 semester hours of political science, among which must be included Introduction to Politics and Government (200), Introduction to American Politics (201), and Senior Seminar (490). Related work consists of 18 semester hours.

Political Science 200 or 201 is a prerequisite for all 300 and 400 level courses in Political Science.

The offerings including introductory courses are divided into five major areas as follows:

1. American Politics: Political Science 201, 302, 303, 304, 310, 320, 325
2. Comparative Politics: Political Science 200, 330, 336, 340, 345, 348, 355
3. International Relations: Political Science 370, 375, 380, 385, 390
4. Political Thought: Political Science 400, 401, 410
5. Political Science as a Discipline: Political Science 450, 490, 495

200. INTRODUCTION TO COMPARATIVE POLITICS AND GOVERNMENT. (3) Political institutions in the contemporary world. An introduction to the concepts of government, the

phenomena of conflict, power, order, and authority implicit in the term "government," as well as the various political systems and structures which men have established.

201. INTRODUCTION TO AMERICAN POLITICS. (3) Role of the President, Congress, Supreme Court and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis upon political culture, the electoral process, interest groups, political communication, and the international commitments of the United States.

AMERICAN POLITICS

302. POLITICS, POLITICAL PARTIES, AND PRESSURE GROUPS. (3) Analysis of the structure, role, and techniques of political parties in the United States. Also the evolution, origin, strategy, and tactics of interest groups in the American political system.

303. VOTING BEHAVIOR AND PUBLIC OPINION. (3) The nature of public opinion and propaganda in modern society. Analysis of the significant findings concerning the social, psychological and political determinants of voting. The relationship between public opinion and the making of public policy.

304. THE PRESIDENT AND CONGRESS. (3) The role of the President and Congress in the formation of policy in the American political system.

310. THE SUPREME COURT. (3) Analysis of the content of historic Supreme Court decisions as well as the role of the Court in the American political system.

320. PUBLIC ADMINISTRATION. (3) An institutional and behavioral analysis of the administrative process. Includes: the rise of the administrative state, its impact on administrative theory and practice, and the nature of the new public bureaucracy; the tasks of the administrator; the political environment of administration; organization, personnel, and finance; the regulatory function and administrative law; and administrative responsibility.

325. STATE AND URBAN POLITICS. (3) The states in the federal system: their history, constitutions, governmental structure, and relations with other units of government; the problems of urban areas. Politics and policy formation at each level of government.

COMPARATIVE POLITICS AND AREA STUDIES

330. CONSTITUTIONAL DEMOCRACY AND AUTHORITARIANISM. (3) Comparative study of the political institutions, processes, and problems of selected democracies and dictatorships, including fascist and totalitarian variants. The conditions that facilitate the origin and development of these forms.

336. THE NATURE OF POLITICAL CHANGE. (3) Comparative study of the nature and causes of political change and stability with reference to the experiences of the United States, some European nations, and selected developing nations. Problems of modernization, impact of revolutions, processes of reform, nation-building, and the influence of social and economic dynamics upon political order.

340. POLITICAL SYSTEMS OF WESTERN EUROPE. (3) Comparative analysis of selected West European governments including Great Britain, France, Germany, and Italy.

345. GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3) The origins of Bolshevism and the substance and role of Marxist-Leninist ideology. The structure and functions of the Community Party of the Soviet Union (CPSU). The principles of Soviet politics and the instruments of rule. The Soviet political system in transition and its relationship to world communism.

348. GOVERNMENT AND POLITICS OF LATIN AMERICA. (3) Constitutionalism, governmental structures, and political processes in Latin America. Problems of development, modernization, and change. Inter-American relations and Latin American world affairs.

355. GOVERNMENT AND POLITICS OF EAST, SOUTHEAST, AND SOUTH ASIA. (3) The structure and evolution of political institutions in China, Japan, Korea, India, and other selected nations. Emphasis upon such topics as nationalism, political modernization, ideology, socio-economic influences, and the role of Asian nations in world politics.

INTERNATIONAL RELATIONS

370. AN INTRODUCTION TO INTERNATIONAL POLITICS AND INSTITUTIONS. (3) Analysis of politics among nations: material and psychological sources of national power, the role of law, force, and diplomacy in world politics, problems of peace and disarmament, and international organizations.

375. AMERICAN FOREIGN POLICY. (3) The problem of defining the objectives of foreign policy in the United States and

of selecting the means for achieving them; past, present, and suggested American strategies in world politics. Comparisons will be made with the processes and issues in other nations.

380. SOVIET FOREIGN POLICY. (3) The concepts, content, and evolution of Soviet foreign relations, with emphasis upon change and continuity in Russian and Soviet policies. Contemporary problems of Soviet diplomacy with other world powers and with the Marxist-Leninist nations of the Communist international system.

385. POLITICAL FOUNDATIONS OF INTERNATIONAL ORDER. (3) The structure, processes, and problems of general and regional international organizations, and the origins and contemporary role of international law.

390. PROBLEMS OF DEFENSE AND NATIONAL SECURITY POLICY. (3) Investigates major concepts of war and the problems of arms control, escalation, and the proliferation of nuclear weapons. Examines trends and conditions of international conflict, technological change, and domestic political environments as they relate to defense and national security.

POLITICAL THOUGHT

400. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from Plato to the seventeenth century.

401. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from the seventeenth century to the present.

410. AMERICAN POLITICAL THOUGHT. (3) An analysis of the ideas underlying government and politics in the United States.

POLITICAL SCIENCE AS A DISCIPLINE

450. SELECTED TOPICS IN POLITICAL SCIENCE. (3) An intensive study of a topic in political science. Topics chosen may vary from semester to semester. A student may take more than one course under this number.

490. SENIOR SEMINAR: THE SCOPE OF MODERN POLITICAL SCIENCE. (3) A course in the "how" and "why" of the discipline rather than the "what." The staff in Political Science will lead the seminar in the consideration of: (1) major works in Political Science (books and scholarly articles), (2) some more important theories currently guiding research in the discipline, and (3) the present posture or direction of the discipline.

495. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Political Science 490, Mathematics 222. (This course is also listed as Sociology 410.) Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data. Recommended for students considering graduate work in the social sciences.

PRE-LAW STUDENTS

Students majoring in Political Science who plan to go to Law School are advised to take the following courses.

(1) Political Science 310
(2) English 305
(3) Speech 101
(4) Philosophy 205
(5) Business Administration 201, 202
(6) History 361, 362

HUMANITIES

350. TOPICS IN HUMANITIES. (3) (May be repeated for credit with consent of the student's major department.) Prerequisite: Junior standing and consent of the sponsoring departments. Topics chosen from the general area of the humanities in order to demonstrate relationships and inter-disciplinary influences.

MATHEMATICS

Professors Wahab, Chairman; Cone, Goodrum[1]; Associate Professors Markham, Schell; Assistant Professors Embry, Herr, Nixon, Stewart, Teague, Thomas; Instructors Davis, King, Leiva, Marshall, Morrow, Wright, Bernstein (part-time)

A major in mathematics for the B.A. degree consists of 27 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department.

A major in mathematics for the B.S. degree consists of 40 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department. For the B.S. degree, a mathematics major must choose French, German, or Russian to satisfy the language requirement.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103 and 104, unless exempted by the department. It is recommended that a prospective freshman major enroll in these courses

[1] On leave of absence, 1966-1967.

during the summer session immediately preceding his freshman year.

The mathematics courses are adequate to serve students with many degree objectives. Some of these with appropriate courses follow:

A. Graduate work in Mathematics.
   Essential: 141, 142, 242, 343, 344, 363, 364, 481, a B.S. in Mathematics.
   Desirable: 241, 361, 443, 381.

B. Emphasis in Applied Mathematics.
   Essential: 141, 142, 241, 242, 371, 372, 237, 322.
   Desirable: 323, 343, 361, 311, 363.

C. Emphasis in Statistics.
   Essential: 141, 142, 221, 237, 223, 322, 323.
   Desirable: 333, 334, 311, 312.

D. Emphasis in Computer Science.
   Essential: 233, 235, 237, 333, 334, 141, 142, 221, 222.
   Desirable: 241, 311 223, 322.

E. Elementary Education.
   Essential: 104, 141, 142, 403, one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a B.A. in Mathematics.
   Desirable: 221, 222, 237, 241, 242.

F. Secondary Education.
   Essential: 104; 141; 142; one of 102, 103, 241, 361; one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a minimum of 30 semester hours in mathematics.
   Desirable: 221, 222, 237, 242.

Combinations of the above will permit a student to achieve other degree objectives.

The B.S. Degree in Mathematics, Curriculum Outline

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Foreign Language 201	3	Foreign Language 202	3
Science	4	Science	4
	17		17

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 2xx	3
Foreign Language 301	3	Mathematics	3
Science	4	Mathematics 242	4
Mathematics 241	4	Science	4
Social Science	3	Social Science	3
	17		17

JUNIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	6
Social Science	3	Humanities	3
Humanities	3	Related Work	6-8
Related Work	3-4		15-17
	15-16		

SENIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	3-6
Related Work	6-8	Related Work	3-6
	12-14	Electives	3-9
			12-15

The B.A. Degree in Mathematics, Curriculum Outline

The curriculum outline for the B.A. degree is essentially the same as for the B.S. degree, except that up to 13 semester hours of mathematics courses may be replaced by an equal number of semester hours of electives. However, the maximum number of hours permitted from a single department to count toward a B.A. degree is 36 semester hours.

101. ELEMENTARY ALGEBRA. (3) Sets, logic, probability and an introduction to computers.

102. ELEMENTARY ANALYSIS. (3) Prerequisite: Mathematics 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to the social and life sciences.

103. ALGEBRA. (3) Sets, logic, an axiomatic treatment of the real numbers as a complete ordered field, solution sets of equations and inequalities, binary relations, functions and binary operations.

104. VECTOR ALGEBRA. (3) Prerequisite or corequisite: Mathematics 103. Algebra and geometry of vectors, a vector approach to trigonometry, vector descriptions of lines and planes, and matrix representation of linear transformations.

132. INTRODUCTION TO COMPUTING TECHNIQUES: (1) Prerequisite: Mathematics 101 or 103. A study of digital computing systems, programming of a digital computer, and the solution of problems on a digital computer. Two laboratory hours per week.

141. INTRODUCTORY ANALYSIS I. (4) Prerequisite: Mathematics 103 and 104, with a grade of C or better in each. (If a student can show to the satisfaction of the Mathematics Department that his knowledge of Mathematics 103 and 104 is adequate, he may be exempted from taking one or both of these courses as prerequisites for Mathematics 141.) Mathematics 141 includes linear spaces and transformations, the differential calculus of real-valued functions and the differential calculus of vector functions. Three lecture hours and two problem hours per week.

142. INTRODUCTORY ANALYSIS II. (4) Prerequisite: Mathematics 141 with a grade of C or better. The integral calculus of vector functions, including the Riemann integral on the real line. Three lecture hours and two problem hours per week.

221. INTRODUCTION TO PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 102 or consent of the Department. The first course of a two semester sequence of a modern introduction to the mathematical theory of probability and statistics with applications.

222. INTRODUCTION TO PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 221. A continuation of Mathematics 221.

223. INTRODUCTION TO PROBABILITY AND STATISTICS III. (3) Prerequisites: Mathematics 141 or consent of the department. An introduction to the linear model as a foundation for least squares estimation and analysis of variance.

233. DIGITAL COMPUTING TECHNIQUES A. (1) Prerequisites: Mathematics 132, Mathematics 102 or 141 or consent of the department. A study of advanced programming techniques that will extend the student's programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of business administration and the behavioral sciences. Two laboratory hours per week.

235. DIGITAL COMPUTING TECHNIQUES B. (1) Prerequisites: Mathematics 132 and 141, or consent of department. A study of advanced programming techniques that will extend the students programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of the physical sciences. Two laboratory hours per week.

237. INTRODUCTION TO ALGORITHMIC PROCESSES: (3) Prerequisites: Mathematics 235, Mathematics 233 and 221, or consent of department. The language, notation, and computational methods necessary for a study of algorithms. The application of a specific procedure-oriented language to solve numerical and non-numerical problems using a digital computer.

241. INTRODUCTORY ANALYSIS III. (4) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the Mathematics Department. Introduction to systems of ordinary differential equations and the requisite topics in analysis needed for their study including infinite series. Three lecture hours and two problem hours per week.

242. INTRODUCTORY ANALYSIS IV. (4) Prerequisite: Mathematics 142, with a grade of C or better, or consent of department. Analytic function theory, complex integration, sequences, series, and residue calculus with applications to Fourier and Laplace transforms and other areas, as time permits. Three lecture hours and two problem hours per week.

311. OPERATIONS RESEARCH I. (3) Prerequisite: Mathematics 222 or consent of the department. The first course of a two semester sequence, including matrix algebra, convex sets, linear programming, and the theory of games.

312. OPERATIONS RESEARCH II. (3) Prerequisite: Mathematics 311. A continuation of Mathematics 311.

322. PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the department. A first course in a two-semester sequence including continuous probability distributions, random variables, limit theorems, stochastic processes, estimation, and hypothesis testing.

323. PROBABILITY AND STATISTICS II. (3) Prerequisites: Mathematics 322. A continuation of Mathematics 322.

333. COMPUTER ORGANIZATION AND PROGRAMMING. (3) Prerequisites: Mathematics 237 or consent of department. Computer structures; machine representation of information; computer control, instruction codes and operations; sub-routines, linkages, macros, interpretive and assembly systems. Two lecture hours and two laboratory hours per week.

334. INFORMATION STRUCTURES. (3) Prerequisite: Mathematics 333 or consent of department. Description of a data base and its structure; concepts of records, files, trees, and lists; sorting, searching and merging of information files; referencing and cross-referencing of files based on list processing. Two lecture hours and two laboratory hours per week.

343. ANALYSIS I. (3) Prerequisite: Mathematics 242 with a grade of C or better, or consent of the department. The first course of a three-semester sequence in the analysis of real-valued functions. Mathematics 343 will include the following topics: limits, continuity, uniform convergence, uniform continuity and Riemann and Lebesque integration.

344. ANALYSIS II. (3) Prerequisite: Mathematics 343. A continuation of Mathematics 343.

350. TOPICS IN MATHEMATICS. (Two or three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as set theory, linear algebra and geometry, and probability. This course is designed to serve particular needs, not served by other departmental offerings, such as the needs of the National Science Foundation Institute for Teachers.

361. LINEAR ALGEBRA. (3) Prerequisite: Mathematics 142 or consent of the department. Algebra and geometry of vector spaces, linear transformations and matrices, linear equations and characteristic values.

362. NUMBER THEORY. (3) Prerequisite: consent of the department. Introductory topics from the theory of rational and algebraic integers.

363. MODERN ALGEBRA I. (3) Prerequisite: Mathematics 242 or consent of the department. The first course of a two semester sequence covering topics in group theory, rings and ideals, fields, and Galois theory.

364. MODERN ALGEBRA II. (3) Prerequisite: Mathematics 363. A continuation of Mathematics 363.

371. APPLIED MATHEMATICS I. (3) Prerequisite: Mathematics 241 and Mathematics 242, each with a grade of C or better, or consent of the department. The first course of a two-semester sequence in applied mathematics including the following topics: calculus of variations, boundary value problems, separation of variables, Green's functions, integral equations and Fourier transforms.

372. APPLIED MATHEMATICS II. (3) Prerequisite: Mathematics 371. A continuation of Mathematics 371.

381. FUNDAMENTAL CONCEPTS OF GEOMETRY. (3) Prerequisite: Mathematics 142 or consent of the department.

Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

391. SEMINAR. (2) Prerequisite: consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

392. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 391.

403. ARITHMETIC IN THE SCHOOL. (3) Prerequisite: Mathematics 102 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration, and the number line appropriate for each grade. (Does not count toward a major in mathematics.)

409. HISTORY OF MATHEMATICAL THOUGHT. (3) Prerequisite: Mathematics 102 or 141. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. (Does not count toward a major in mathematics.)

443. ANALYSIS III. (3) Prerequisite: Mathematics 344. A continuation of Mathematics 344.

450. SELECTED TOPICS IN MATHEMATICS. (Two or three semester hours credit, but may be repeated for credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as topology, differential geometry, complex analysis, applied mathematics, or modern algebra.

481. INTRODUCTION TO TOPOLOGY. (3) Mathematics 242 or consent of the department. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axiom, compactness and connectedness.

491. SEMINAR. (2) Prerequisite: consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 491.

MUSIC

Instructor Woodruff (part-time)

101. ELEMENTARY THEORY OF MUSIC. (3) Fundamentals of music, sight-singing, ear-training, dictation, beginning keyboard harmony. Two lecture hours and one two-hour laboratory per week.

102. ELEMENTARY THEORY OF MUSIC. (3) Prerequisite: Music 101. Continuation of Music 101.

207. APPRECIATION OF MUSIC. (3) The enjoyment of music through intelligent listening, with attention to musical forms, style, and the relationship of music to the whole culure. Both instrumental and vocal works will be studied.

209. HISTORY OF MUSIC. (3) Music from its origins through the Baroque Period.

210. HISTORY OF MUSIC. (3) Music from the Baroque to the present.

307. MUSIC FOR ELEMENTARY SCHOOL TEACHERS. (2) Prerequisite or corequisite: Education 303. Methods and materials of instruction which the teacher can apply in a music program in the elementary school.

INDIVIDUAL INSTRUCTION

151-152, 251-252. PIANO.

161-162, 261-262. VOICE.

NOTE: Each semester, two one-half hour meetings a week, two credit hours. A maximum of eight semester hours of individual music instruction may be counted toward a degree.

ENSEMBLE

181-182, 281-282, 381-382. CHORUS.

NOTE: Each semester, one credit hour. A maximum of six credit hours in chorus may be counted toward a degree.

NURSING

Associate Professor Brocker, Chairman; Assistant Professor Caddell

For the degree of Bachelor of Science with a major in Nursing, 46 semester hours in Nursing and 15 to 19 semester hours in related work are required. A total of 130 semester hours is required.

All clinical courses are taught in related hospitals and other community health agencies and provide the laboratory setting for the application of theoretical content in actual patient and/or family situations.

It is recommended that Chemistry, Biology, and a foreign language be taken in high school in preparation for the Nursing program.

Course of Study for a Bachelor of Science Degree with a Major in Nursing

FRESHMAN YEAR

	Sem. Hrs.		Sem. Hrs.
English 101	3	English 102	3
Mathematics 101	3	Mathematics 102	3
Chemistry 101	4	Chemistry 102	4
Biology 101	4	Nursing 102	3
Foreign Language 201	3	Foreign Language 202	3
	17		16

SOPHOMORE YEAR

	Sem. Hrs.		Sem. Hrs.
Biology 204	4	Biology 203	4
Sociology 201	3	Psychology 201	4
Foreign Language 300	3	Nursing 204	2
English 201	3	English 202, 203, or 204	3
Nursing 201	4	Nursing 202	4
	17		17

JUNIOR YEAR

	Sem. Hrs.		Sem. Hrs.
History 101	3	History 102	3
Elective (related work)	3	Sociology 303	3
Elective (Humanities)	3	Psychology 202	3
Nursing 301	5	Nursing 302	5
Elective (related work)	3	Elective (related work)	3
	17		17

SENIOR YEAR

	Sem. Hrs.		Sem. Hrs.
Psychology 307	3	Elective (Humanities)	3
Nursing 401	5	Nursing 402	5
Nursing 403	5	Nursing 404	4
Nursing 491	2	Nursing 492	2
	15		14

102. ECOLOGY OF MAN I. (3) The focus of this course is directed toward understanding the relationship of the ill person to his family and community. Major health problems and facilities provided by society for meeting health needs will be included in the content. Lectures, field trips.

201. FUNDAMENTALS OF NURSING. (4) Prerequisite or corequisite: Nursing 102. Study of the basic concepts and principles essential for the nursing care of adults and children. Emphasis is placed on the correlation of principles of nursing with concepts of behavioral and natural sciences. Two hours lecture, six hours laboratory assignment in patient care areas.

202. FUNDAMENTALS OF NURSING II. (4) A continuation of Nursing 201.

204. ECOLOGY OF MAN II. (2) Prerequisite: Nursing 102 or consent of the department. A laboratory course. Students will work with carefully selected families, performing appropriate nursing functions. Individual and group study. Field work.

301. FUNDAMENTALS OF NURSING III. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and meet the needs of adults and children undergoing medical therapy or surgical intervention for acute and long term illness.

302. FUNDAMENTALS OF NURSING IV. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and to meet nursing needs of mothers (obstetric nursing), the new born, and children.

401. FUNDAMENTALS IN NURSING V. (Psychiatric Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. A study of fundamental principles and techniques of nursing skills necessary for working with patients with emotional disorders. Emphasis is placed on nurse-patient relationships leading to development in interpersonal skills which result in therapeutic changes in behavior.

402. FUNDAMENTALS IN NURSING VI. (Advanced Patient Care). (5) Prerequisites: 200 and 300 level courses in nursing. This course will provide opportunities to increase knowledge and skill in the care of critically ill patients in the Intensive Care Units.

403. FUNDAMENTALS OF NURSING VII. (Public Health Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. Considers concepts and philosophy of public health nursing; functions and responsibilities of the public health nurse in the community. Laboratory experience in community health nursing and public health agency settings.

404. FUNDAMENTALS OF NURSING VIII (Leadership in Nursing). (4) Prerequisites: 200 and 300 level courses in nursing. Study of principles of administration in nursing in hospitals and public health agencies; focuses on management of nursing care of patients. Opportunities for participation in management functions will be provided in the hospital.

491. SEMINAR IN NURSING I. (2) Corequisites 401 or 402 and 404. Intellectual inspection and identification of common concepts in clinical nursing with the intent to broaden and deepen the understanding of specialties of nursing.

492. SEMINAR IN NURSING II. (2) Corequisites: 401 and 403 or 402 and 404. Dialogues in philosophy of nursing.

PHILOSOPHY

Assistant Professors Corkey, Witherspoon; Instructor Byerly

201. INTRODUCTION TO PHILOSOPHY (3) An introduction to some of the basic concepts and problems of philosophy. Typical problems such as freedom and determinism, mind-body interaction, the status of moral judgments, and the problem of perception. Readings from the works of representative philosophers, both classical and contemporary.

205. INTRODUCTION TO LOGIC AND SCIENTIFIC METHOD. (3) An introduction to the study of the general principles of deductive logic, both classical and symbolic, and an introduction to the nature of inductive reasoning and scientific explanation.

301. ETHICS. (3) A study of the development of ethical thought in ancient and modern times, with special references to present day ethical problems. Readings selected from classical and contemporary sources.

302. ANCIENT PHILOSOPHY. (3) Prerequisites: Philosophy 201 or Junior standing. An inquiry into the history of Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, the Epicureans, Stoics, Skeptics, and Neoplatonists.

303. MODERN PHILOSOPHY FROM DESCARTES TO HEGEL. (3) Prerequisites: Philosophy 201 or Junior standing. An inquiry into the development of modern philosophic and scientific thought. Readings selected from representative works in the seventeenth through the nineteenth centuries.

304. RECENT AND CONTEMPORARY PHILOSOPHY. (3) Prerequisites: Philosophy 201 or Junior standing. An inquiry into the history of Western thought in the nineteenth and twentieth centuries.

350. TOPICS IN PHILOSOPHY. (3) May be repeated for additional credit with the approval of the department. Prerequisite: Consent of the department. Topics to be chosen from specific areas in philosophy such as metaphysics, theory of knowledge, aesthetics, symbolic logic, and philosophy of science, or significant philosophic movements, or detailed study of the works of individual philosophers.

401. PHILOSOPHY OF RELIGION. (3) Prerequisites: Philosophy 201 and Junior standing. A discussion of the philosophical implications of religious experience. The definitions, development, and diverse forms of the problems of belief and reason in modern thought.

402. PHILOSOPHY OF THE EAST. (3) Prerequisite: six hours of philosophy. A survey of thought in the East from ancient to modern times. Special emphasis on the philosophical concepts of Hinduism, Buddhism, Confucianism, and Taoism.

425. AMERICAN PHILOSOPHY. (3) Prerequisites: Philosophy 201, Junior standing, and consent of the instructor. The emergence of American thought from its matrix in earlier theological, social, and literary thought. Chief emphasis on the late nineteenth and early twentieth centuries.

491. SEMINAR. (2) Prerequisite: Consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: Consent of the department. A continuation of Philosophy 491.

PHYSICAL EDUCATION

Instructor Murphy

101. FOUNDATIONS OF PHYSICAL ACTIVITY. (1) The application of various physical training programs designed to improve and maintain physical fitness. One-sixth of the meeting time will be devoted to lectures on physiological and psychological aspects of physical training. Three one-hour meetings a week.

102. TEAM SPORTS. (1) The skills and rules of two sports selected from soccer football, rugby football, field hockey, speedball, and volleyball will be taught. Three hours each week.

114. FENCING. (1) The skills and rules of the sport of fencing will be taught. Three hours each week.

409. PHYSICAL EDUCATION LABORATORY. (2) Prerequisite: Education 303. Physical education instruction, principles of physical education teaching for the elementary grades.

PHYSICS

Associate Professor Tanner; Assistant Professor Vermillion

101. INTRODUCTORY PHYSICS. (4) Prerequisite or corequisite: Mathematics 101 or Mathematics 103. Introduction to the

fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g., relativity, quantum mechanics, elementary particles) in order to illustrate the logical structure of modern science. Three lecture hours and one three hour laboratory each week.

102. INTRODUCTORY PHYSICS. (4) Prerequisite: Physics 101. A continuation of Physics 101. Three lecture hours and one three hour laboratory each week.

201. FOUNDATIONS OF PHYSICS I. (4) Corequisite: Mathematics 142. Logical, mathematical, and empirical structure of the major concepts and principles of physics. Topics from kinematics, dynamics (classical and relativistic), electromagnetism, wave theory, and elementary quantum theory will be selected to emphasize such fundamental concepts as conservation laws, symmetry principles, nature of space and time. Three lecture hours and one three hour laboratory each week.

202. FOUNDATIONS OF PHYSICS II. (4) Prerequisite: Physics 201. A continuation of Physics 201. Three lecture hours and one three hour laboratory each week.

300. SPECIAL TOPICS. (One to three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: Physics 202. Used to comply with requests for special topics from such fields as special relativity, solid state physics, advanced quantum physics, advanced statistical physics.

301. CLASSICAL MECHANICS. (3) Prerequisites: Physics 202 and Math 241. Dynamics of particles. Small oscillations. Rigid bodies. Lagrange's and Hamilton's formulations.

302. CLASSICAL ELECTROMAGNETIC THEORY. (3) Prerequisite: Physics 301 or consent of Physics Department. Electric and magnetic fields. Potential theory. Energy relations. Maxwell's Equations. Electromagnetic waves.

311. QUANTUM PHYSICS I. (3) Prerequisite: Physics 202, or consent of department. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of atoms, molecules, and solids.

312. QUANTUM PHYSICS II. (3) Prerequisite: Physics 311. A continuation of Physics 311.

313. INTRODUCTION TO STATISTICAL PHYSICS. (3) Prerequisite: Physics 202 or consent of department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics.

PSYCHOLOGY

Professor Diamant; Associate Professor Schultz; Assistant Professor Sohn; Instructor Windholz

A major in Psychology leading to the B.A. degree consists of 29 semester hours of Psychology, including General Psychology (201), Experimental Psychology (341), or Experimental Psychology (342) and Seminar (491 or 492).

Psychology majors are also required to take Math 221-222, Probability and Statistics, and a minimum of three courses in areas A and B below. Both areas must be represented in the selection.

A.		B.	
	Anthropology		Biology
	Sociology		Physics
	Philosophy		Chemistry

A total of 15 semester hours in related work, to be arranged with the Department of Psychology, and which may include courses from areas A and B, is to be taken by majors. Twenty-one hours of Education may, if desired by a student taking work in Elementary Education, be substituted for the three courses drawn from A and B.

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Natural Science	4	Natural Science	4
Foreign Language	3	Foreign Language	3
	16		16

3rd Semester		*4th Semester*	
English 201	3	English 202	3
Foreign Language	3	Natural Science	4
Psychology 201	4	Mathematics 222	3
Mathematics 221	3	Psychology Elective	3
Elective	3	Elective	3
	16		16

5th Semester		*6th Semester*	
Experimental Psychology 341 or 342	4	Psychology Electives	6
Related Work	6	Related Work	3
Psychology Elective	3	Electives	6
Electives	6		15
	19		

7th Semester		*8th Semester*	
Psychology Seminar 491	3	Psychology Electives	3
Related Work	3	Related Work	3
Psychology Elective	3	Electives	9
Electives	6		15
	15		

201. GENERAL PSYCHOLOGY. (4) Survey of general psychology as a behavioral science. Three lecture hours and one laboratory period of two hours a week.

202. EDUCATIONAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The psychology of learning; problems related to the instructional processes. Case study required.

203. PSYCHOLOGY OF ADJUSTMENT. (3) Prerequisite: Psychology 201. The study of the process of adjustment. Primary consideration given to motivation, frustration and conflict, adjustment mechanisms, and psychotherapy.

301. CHILD PSYCHOLOGY. (3) Prerequisite: Psychology 201. The instincts, emotions, and general tendencies of children up to the age of twelve. Remedial measures suggested in dealing with early child tendencies which might lead to serious school and personality difficulties. Special study of at least one child required for each student.

302. ADOLESCENT PSYCHOLOGY. (3) Prerequisite: Psychology 201. Developmental and psychological characteristics of adolescence. Research methods and familiarity in case study emphasized. School and personality problems studied.

303. SOCIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The social behavior of man. Man's behavior in relation to other individuals, groups, and products of culture, both material and nonmaterial. Group dynamics, leadership, the nature of prejudice, the effects of mass communication, public opinion are some of the topics treated.

305. PSYCHOLOGY OF PERSONALITY. (3) Prerequisite: Psychology 201. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, and perceptual viewpoints in the light of contemporary research.

307. ABNORMAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

308. LEARNING THEORY. (3) Prerequisite: Psychology 201. A survey of learning theories including the major associationist, cognitive, and mathematical positions. A comparative approach is taken whenever possible.

341. EXPERIMENTAL PSYCHOLOGY: LEARNING AND MOTIVATION. (4) Prerequisites: Psychology 201 and Math 222. History of the experimental approach to motivation and learning theory, current issues and controversy. Emphasis on lab-

oratory problems. Three lecture hours and one laboratory period of two hours a week.

342. EXPERIMENTAL PSYCHOLOGY: SENSATION AND PERCEPTION. (4) Prerequisites: Psychology 201 and Math 222. Survey of literature on sensation and perception. Introduction to problems and methods in research in sensation and perception. Three lecture hours and one laboratory period of two hours a week.

351. PHYSIOLOGICAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The relationship of the physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

361. HISTORY AND SYSTEMS OF PSYCHOLOGY. (3) Prerequisite: Psychology 201. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behaviorist theory. Evaluation of current existential influence.

371. INDUSTRIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. Psychological theories as applied to industry and business. Studies in human engineering and personnel problems.

450. TESTS AND MEASUREMENTS. (3) Prerequisite: Psychology 201. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration, and application of group tests. Individual tests such as Stanford Binet, WISC, and WAIS will be reviewed.

421. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3) Prerequisites: Psychology 201 and 301. Assessing the exceptional child. Emphasis on current research in several diagnostic categories.

491. SEMINAR. (3) Admission by consent of department. Intensive reading and discussion in selected areas. Issues of current importance; social, scientific, and philosophical implications.

492. SEMINAR. (3) Admission by consent of department. A continuation of 491.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology, or (2) major in sociology with related work in psychology (see p. 128-129). Whichever major is chosen, care should be taken to include the following courses: Psychology 303 (Social Psychology), Psychology 305 (Psychology of Personality), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

RELIGION

Assistant Professors Corkey, Witherspoon

201. SURVEY OF THE OLD TESTAMENT. (3) An introduction to the literary and historical values of the Old Testament literature. Emphasis upon the background, purpose, and content of the writings in English translations.

202. SURVEY OF THE NEW TESTAMENT. (3) New Testament literature in its historic and contemporary background. Emphasis upon the content and purpose of the text in English translations.

203. COMPARATIVE RELIGIONS. (3) A survey of man's religious consciousness from the earliest intimations of its awakening to the development of the world's living religions today, utilizing modern research among contemporary primitive cultures and translations of the primary sources of the world's great scriptures.

301. THE LIFE AND TEACHINGS OF JESUS. (3) Prerequisite: Religion 202. A study of the Gospels for an understanding of the life of Jesus and the religion he taught.

303. THE HEBREW PROPHETS. (3) Prerequisite: Religion 201. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth and sixth centuries B.C. Emphasis will be placed on the contributions of the prophets to their own day and their significance for religious thought today.

405. THEOLOGY AND CONTEMPORARY LITERATURE. (3) Prerequisite: Open to seniors only with the consent of the department. A discussion of the theological issues raised by contemporary writers—both Christian and non-Christian. Consideration will be given to the writings of such authors as Camus, Eliot, Greene, Miller, Salinger, Steinbeck, and others.

406. RELIGION IN AMERICAN LIFE. (3) Prerequisite: Junior standing and the consent of the instructor. An inquiry into the role religion has played in the development of American life with particular emphasis on the late nineteenth and twentieth centuries.

SOCIOLOGY

Instructors Harris, Lacey, Marrotte (part-time)

A major in sociology leading to the B.A. degree consists of 27 semester hours of sociology, including Soc. 201 (General Sociology), Soc. 401 (Sociological Theory), Soc. 410 (Research Methods in Social Science), and Soc. 491 (Seminar for Majors in Sociology). Psychology 303 may be substituted for a Sociology course among the 27 required semester hours in Sociology for majors only. Related work consists of 21 semester hours in any two of the following fields: economics, history, mathematics, political science, psychology. Math. 221, 222 (Introduction to Probability and Statistics I, II) are required of majors in sociology.

201. GENERAL SOCIOLOGY. (3) Survey of the field of sociology to cover such topics as: social norms and values, status and role, social stratification, socialization, crowds and publics, formal and informal groups, urban communities, population, social institutions.

203. GENERAL ANTHROPOLOGY. (3) Survey of the field of anthropology: physical anthropology, prehistoric archeology, ethnology, culture theory.

270. INDUSTRIAL SOCIOLOGY (3) Prerequisite: consent of department. The application of sociological concepts and theories to the analysis of social relationships in business and industry. A study of relationships of industry to the community and society.

302. SOCIAL PROBLEMS. (3) Prerequisite: Sociology 201. Sociological analysis of crime and delinquency, alcoholism, drug addiction, mental disorders, race relations, and problems of population.

303. SOCIOLOGY OF THE FAMILY. (3) Prerequisite: Sociology 201. Analysis of the structure and functioning of the American family and of such related institutional patterns as dating, courtship, marriage, and divorce.

310. AMERICAN MINORITY GROUPS. (3) Prerequisite: Sociology 201. Sociological analysis of the relations between minority and dominant groups in America, with special attention paid to such American minorities as immigrant groups, Mexicans, Puerto Ricans, Orientals, Catholics, Jews, Indians, and Negroes.

318. SOCIAL CONTROL. (3) Prerequisite: Sociology 201 or consent of department. The relation of social norms to conforming and deviant behavior with emphasis on the role of the small "status group" in behavioral control. Special attention is

given to a study of public opinion and propaganda as forces in social control.

320. URBAN SOCIOLOGY. (3) Prerequisite: Sociology 201. Origin and development of cities; ecological and social structure of city and region; nature and functioning of urban institutions.

323. COMMUNITY ORGANIZATION OF SOCIAL SERVICES. (3) Analysis of the organization of agencies and services for welfare, health, recreation, and other social needs in American communities.

401. SOCIOLOGICAL THEORY. (3) Prerequisite: Sociology 201. Background and contemporary expression of systematic theories of social organization, social differentiation, social change, and other social phenomena.

402. CONTEMPORARY SOCIAL INSTITUTIONS. (3) Prerequisite: Sociology 201 or consent of department. Emphasis on trends and changes in contemporary society. Particular attention is directed toward social and cultural change and the impact of technology, etc., upon major social institutions.

410. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Sociology 201, Math 222. Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data.

491. SEMINAR FOR MAJORS IN SOCIOLOGY. (3) Prerequisite: Permission of department. Independent study, small group discussion and critique.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology (see p. 124-127) or (2) major in sociology with related work in psychology. Whichever major is chosen, care should be taken to include the following courses: Psychology 305 (Theory of Personality Development), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

SPEECH AND THEATRE

Associate Professor Nicholson

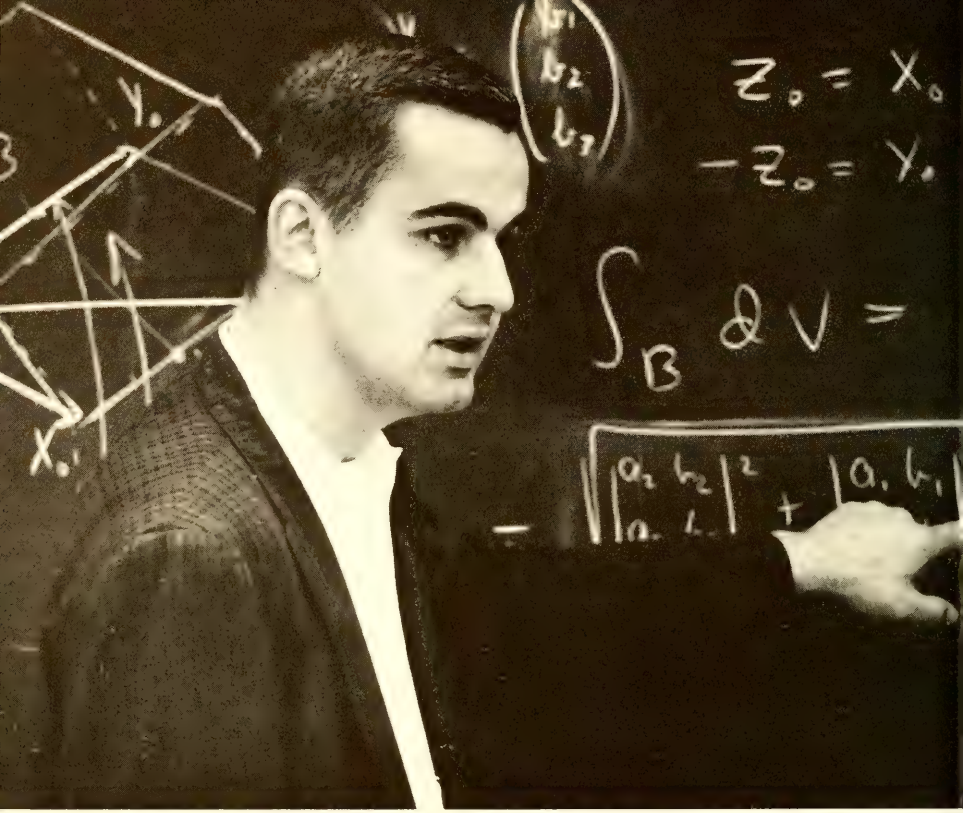
101. FUNDAMENTALS OF SPEECH. (3) Training in voice and diction to develop effective delivery. The composition and presentation of speeches.

201. ORAL INTERPRETATION OF LITERATURE. (3) Prerequisite: Sophomore standing. Intensive training in voice and diction. Analysis and presentation of selected English and American literature.

211. THEATRE WORKSHOP. (2) An acting laboratory. Development of a creative approach to acting through exercises in concentration, pantomime, inprovisation, characterization. Three hours weekly.

212. THEATRE WORKSHOP. (2) Prerequisite: Speech 211. Emphasis on the disciplines of acting technique. Analysis and presentation of selected scenes from plays.

301. GREEK AND ROMAN DRAMA IN TRANSLATION. (3) Prerequisite: 6 semester hours of literature on the 200 level or above. A study of selected plays of Aeschylus, Sophocles, Euripides, Plautus, Terence, and Seneca with emphasis on dramaturgy and the devlopment of the Greek and Roman theatre.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V. FACILITIES AND SERVICES

LIBRARY FACILITIES

The J. Murrey Atkins Library has as its primary objective the acquisition, organization, and dissemination of materials needed by students and faculty for instructional and research purposes, as well as that of a more general and recreational nature for the enrichment of leisure time.

Major elements of the library are an open shelf collection of approximately 80,000 volumes, some 1,800 periodicals to which the library subscribes on a continuing basis, several thousand publications of the United States Governmental departments and agencies, official reports of the United Nations and affiliated agencies, microfilm of the *New York Times*, and other newspapers, and recordings of the spoken word. In addition, a general pamphlet file as well as a curriculum materials file contain non-book materials of value to all students. The latter file is particularly useful to students who plan to teach in elementary and secondary schools. A special collection of books, periodicals, and other materials relating to North and South Carolina is housed on the second floor. The archives collection houses manuscripts, photos, and other material relating to the history of the University. The Library of Congress classification system is used for the arrangement of books and periodicals in the Atkins Library.

Facilities for obtaining both positive and negative copies of library materials are available. Books and periodicals not available in the Atkins Library may be obtained from other libraries through Inter-library Loan, photocopies usually being substituted for articles of less than twenty pages.

Exhibits featuring the work of both campus and community artists are frequently presented in lobby areas, as are special displays of library materials.

THE UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program. The Union provides for the services, conveniences, and amenities the members of the University family need in their daily life on the campus and for getting to know and understand one another through informal association outside the classroom.

The Union is part of the educational program of the University. It serves as a laboratory of citizenship, training students in social responsibility and for leadership in our democracy. Through its various boards, committees, and staff it provides a cultural, social, and recreational program, aiming to make free time activity a cooperative factor with study in education.

The Union Building houses the book store, cafeteria, games room, lounge-gallery area, a large multi-purpose room with facilities for dances, lectures, films, and banquets, meeting rooms, offices of student government and major publications, hobby shops, and an information center.

TRANSPORTATION

Charlotte City Coach Lines provides bus transportation from Charlotte to the campus on a regular schedule, connecting with established routes. Detailed information regarding routes, times and fares may be obtained from the main office of the Charlotte City Coach Lines or at the University Union Information Center. Weekly passes may be purchased at either location.

DINING FACILITIES

The cafeteria in the Union building serves meals and snacks from 7:30 a.m. to 7:00 p.m., Monday through Thursday, and from 7:30 a.m. to 5:00 p.m. on Friday.

COUNSELING AND TESTING

Each student entering the University is assigned a faculty advisor, who is usually in the department of the student's major. The advisor is available to assist the student in planning his academic program and approve the courses to be taken each semester. The Dean, the department heads, the Director of Admissions and Registration, and the Staff in the Office of Student Affairs are also available to provide the student with information on curricula and to aid him in the selection of a major. However, the ultimate responsibility for the selection of courses and compliance with the University requirements for a degree rests with the student.

Students may consult the Staff in the Office of Student Affairs regarding the choice of a vocation, the selection of curricula, and problems of finance and personal adjustment. Information is available on aptitude and interest tests.

EDUCATION FOR THE VOCATIONALLY HANDICAPPED

Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance, medical treatment and placement, and training or scholarships which cover the costs of training. Payment of University expenses such as books, fees and tuition may be available. All the services are available at no cost to the individual who qualifies.

A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by telephoning the Vocational Rehabilitation Office, located in Room 206, 517 Insurance Lane, at 375-8686.

PLACEMENT SERVICE

The Placement Service for graduates is centered in the Office of Student Affairs. This Office maintains information on positions available for graduates and arranges for interviews between prospective graduates and employers during the spring semester. The Office seeks to develop personal data for each prospective graduate during his senior year and maintains a set of credentials which the graduate may have sent to prospective employers over the years. Although this Office coordinates the placement work involving prospective teachers, the members of the Department of Education are primarily responsible for the placement of teachers.

VI. ACTIVITIES

STUDENT ACTIVITIES

STUDENT GOVERNMENT

The University desires to encourage and to develop self-government of its students. The Student Government Association was organized in 1946, the first year of the Charlotte College Center, and has continued to function since that time.

The Student Legislature is composed of the president, vice-president, secretary, and treasurer of the Student Body, and the president, vice-president, and four representatives of each of the four classes (freshman, sophomore, junior and senior). The functions of these officers include serving students in every possible way, forming committees to develop the Student Government program, and assisting in the formulation of University policies, with the help of all students and faculty.

It is expected that students will at all times obey the rules and regulations of the University and the regulations of the Student Legislature. The Student Court is established for the purpose of judging violations of these rules and regulations, including making recommendations to the University Administration when this is appropriate. It is through the Student Court that students exercise the privilege of policing themselves.

It is the Student Court which also administers the Honor Code. This Code, adopted by the Student Body during the Fall Semester, 1965, reads as follows:

> "Under the Honor Code you are on your honor not to cheat, lie, or steal; and if you see another student doing so you are on your honor to report the individual and the circumstances to the appropriate student agency."

ATHLETICS

The intercollegiate athletic program consists of competition in basketball, golf, tennis, bowling, track, and cross-country, within the framework of the Dixie Intercollegiate Athletic Conference of which Charlotte College was a charter member. A full schedule of games with other members of the Conference (associated with the National Association of Intercollegiate Athletics) and other four-year institutions throughout the state is played by the University of North Carolina at Charlotte Forty-niners. Additional sports will be added to the program as facilities and staff become available.

RECREATION

The intramural program of activities will be expanded as additional facilities become available on campus.

A full program of recreation and entertainment is sponsored

by the University Union. This program includes formal and informal dances, coffee hours, movies, picnics, receptions, game tournaments, concerts and lectures. The University Union building, opened in 1963, serves as the center for these programs.

PUBLICATIONS

LITERARY MAGAZINE

The Parnassian, a literary magazine, is published by the members of the Literary Club. This publication was first issued in the spring of 1957 and has as its aim the promotion of interest in good writing. The broad scope of subject matter gives an interesting presentation of student opinion and sentiment.

NEWSPAPER

To provide information for all persons interested in the University, the students publish a newspaper, *The Carolina Journal.* The purposes of the newspaper are to create a wholesome school spirit, to support the best traditions of the institution which it represents, to encourage worthy university activities, to promote scholarship, to encourage the ideals of true sportsmanship, and to record the history of the University.

YEARBOOK

The University's yearbook was first published in the spring of 1950. Since then it has greatly increased in size and student interest. The purpose of the yearbook is to present a written and pictorial record of each university year. This publication is supported through advertisements and the General Fee. The yearbook is provided free to all students taking seven or more semester hours of work each semester during the academic year. Students taking six or fewer semester hours of work each semester during the academic year may obtain a yearbook upon payment of $5.00

ORGANIZATIONS

ACADEMIC

The purpose of the *University Chapter of the Student National Education Association,* which is affiliated with the North Carolina Education Association, is to inform students of the possibilities offered in the field of education, to encourage qualified students to become teachers, and to provide students with an opportunity to discuss educational issues and problems.

The Engineers' Club was formed in the fall of 1960 to give

the student engineer a greater understanding of all phases of engineering. Through the assistance of the Charlotte Engineers' Club, examples of emerging engineering theory are presented in the form of practical applications.

Chez les Francais, the French Club, is open to all students interested in the language, customs and culture of the French people. Social and educational meetings are held for the purpose of broadening the members' knowledge of French civilization and increasing their conversational ability in the French language.

El Club Espanol is open to students interested in fellowship and conversation in Spanish. The meetings are informal and are usually conducted in both Spanish and English. Frequently Spanish speaking guests talk to members of the club about the Hispanic countries. The students also participate in the presentation of plays, songs, dances, and films.

The Chemical Society is open to students with a deep interest in chemistry and is designed to afford opportunity for members to become better acquainted, to secure the intellectual stimulation that arises from professional association and to instill a professional pride in chemistry and chemical engineering.

The Business Club is open to students majoring in business who have completed their freshman year. Purposes include increasing knowledge and interest in the practical application of business practices, gaining insight into the business world, and stimulating fellowship among members through mutual help and social activities.

The Student Nurse Club is open to students majoring in nursing. The purpose shall be to regulate all matters pertaining to the life of the students of the Department of Nursing not under the jurisdiction of the faculty; to increase a sense of individual responsibility; and to cooperate with the faculty in creating and maintaining high ideals for the nurses of the University.

The Psychology Club is open to any interested student and the purpose is to promote an interest in psychology and a better understanding of the field of psychology and its opportunities by programs and speakers.

INTEREST

The *Collegiate Council for the United Nations* seeks through discussion groups and inter-campus meetings to gain an understanding of the activities of the United Nations and of the problems facing its member nations. Its broader purpose is to encourage student interest in international affairs.

Its membership is open to all students, and foreign students are particularly urged to take part in the activities of the Council.

The Pep Club is open to any interested student. The purpose is to promote school spirit.

The Judo and Kung-Fu Society is open to interested students and faculty members. The purpose is to encourage student interest in the martial arts, and through this means, promote student participation in University functions; to demonstrate the philosophy of the oriental martial arts, and the merits of physical and mental fitness.

SERVICE

Circle K is a men's service organization that seeks to develop activities that will be of significant value to the university. Students may ask to join Circle K or they may be asked by other Circle K members to become affiliated. The University Chapter is sponsored by the Mecklenburg Kiwanis Club.

Alpha Phi Omega, a national service fraternity, is open to men students with past experience in scouting, YMCA, and other service organizations of this nature. Its purposes are to develop leadership, to promote friendship, and to provide service to chapter, campus, community and country.

Rotoract Club is a men's service organization sponsored by the Rotary Club to promote leadership and community responsibility.

LITERARY

The Literary Club has as its purpose the discovering and developing of talent sufficient to provide a genuine support toward the production of a literary magazine. Students showing an interest in writing are invited to become members of the Writers' Club.

MUSICAL

The University Chorus, which was re-organized in 1956, has added much to the atmosphere of the school. The members of this group meet weekly with a dual purpose of enjoying singing together and improving their musical abilities. The Chorus furnishes musical programs for special events during the year. One semester hour of credit may be earned for each semester of participation. Only four semester hours may be credited toward a degree.

ADVISORY

The Freshman Advisory Committee has a dual purpose: to orient new students in the way of the University and to assist the faculty during registration. More than one hundred students are selected by the Student Legislature to serve on this committee.

POLITICAL

The *Young Democrat Club* and the *Young Republican Club* give the student an opportunity to engage in practical politics as well as to hear speakers from local, state, and national levels of our political parties. Membership is open to all interested students.

The Student Party and *The University Party* are organized to promote student interest and participation in campus politics, including endorsement of candidates for campus elective offices and their platforms. Any student may join either, but not both, of the parties.

VII. BENEFACTIONS

PROFESSORSHIPS

The **Charles H. Stone Fund** was given by Mrs. Stone in memory of her husband, a pioneer in the chemical and dyestuff industry in the South. The grant is dedicated to perpetuating the memory of Mr. Stone and assuring the high quality of chemistry instruction at the University of North Carolina at Charlotte. The net income will be used for the payment of a salary supplement to a distinguished member or members of the chemistry faculty, who will be designated as "Charles H. Stone Professors of Chemistry." Before World War I Mr. Stone was employed by a German chemical company, and later he formed his own company in Charlotte and operated it until 1937 when it was purchased by American Cyanamid Company. Mr. Stone remained active with the company until his retirement in 1947. He died October 20, 1963.

The **Robert Lee Bailey Professorship in History** was established in December, 1965 to honor and reward excellence in teaching by a gift in memory of Lieutenant Robert Lee Bailey of the 10th Armored Division of the U. S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College, and before the war was associated with Broyhill Furniture Company. Yearly additions will be made to the original gift.

THE FOUNDATION OF THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The Foundation of the University of North Carolina at Charlotte was founded in 1960 and has had from its inception the goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private sources to contribute so that needs unmet, or inadequately provided for through state funds, may be met. The Celanese Corporation of America and the Celanese Fibers Company presented a gift in July, 1963, of a manufacturing plant at Burlington, North Carolina, valued at $1,150,000. The income derived from the rental of this plant is used to supplement the salaries of members of the faculty who teach chemistry, engineering, mathematics, physics and related subjects.

The Foundation of the University of North Carolina at Charlotte has established a program called, "Patrons of Excellence," with the primary initial objective of supplementing the salaries of distinguished faculty members. Under the program, Patrons pledge a minimum of $1,000 a year for a period of 10 years. The first goal of the program is to enlist 100 Founding Patrons of Excellence.

VIII. DIRECTORY

THE UNIVERSITY OF NORTH CAROLINA

(Four Component Institutions)

WILLIAM CLYDE FRIDAY, B.S., LL.B., LL.D., *President*

WILLIAM WELLS, A.B., A.M., Ph.D., *Vice- President for Academic Affairs*

ARNOLD KIMSEY KING, A.B., A.M., Ph.D., *Vice-President for Institutional Studies*

FREDERICK HENRY WEAVER, A.B., A.M., *Vice-President for University Relations*

ALEXANDER HURLBUTT SHEPARD, JR., A.B., M.A., *Assistant Vice-President and Treasurer*

RUDOLPH PATE, B.S., *Assistant to the President*

By the act of the General Assembly of 1931 the University of North Carolina at Chapel Hill, the North Carolina College for Women at Greensboro (renamed The Woman's College of the University of North Carolina), and the North Carolina State College of Agriculture and Engineering at Raleigh were consolidated into The University of North Carolina.

By the act of the General Assembly of 1963, amended in 1965, The University of North Carolina comprises: The University of North Carolina at Chapel Hill, The University of North Carolina at Charlotte, The University of North Carolina at Greensboro, and North Carolina State University at Raleigh.

Each campus of the University has its own faculty and student body, and each is headed by a chancellor as its chief administrative officer. Unified general policy and appropriate allocation of function are effected by a single Board of Trustees and by the President with other administrative officers of the University. Administrative offices are located in Chapel Hill.

Members of the Board of Trustees are elected by the Legislature, and the Governor of North Carolina is chairman ex officio. A current list of members of the Board of Trustees is given below.

The chancellor of each component institution is responsible to the President as the principal executive officer of The University of North Carolina.

BOARD OF TRUSTEES

GOVERNOR DAN K. MOORE, *Chairman,* (ex officio)

ARCH T. ALLEN, *Secretary*

MRS. ANN HOUGHTALING, *Assistant Secretary*

CHARLES F. CARROLL, *State Superintendent of Public Instruction* (ex officio)

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Luther H. Hodges, Chapel Hill
John W. Clark, Franklinville
John W. Umstead, Jr., Chapel Hill
Frank P. Graham, New York, New York
Gordon Gray, Washington, D. C.
Terry Sanford, Fayetteville

Class of April 1, 1967

Arch T. Allen, Wake
Mrs. Ed. M. Anderson, Ashe
Ike Andrews, Chatham
William C. Barfield, New Hanover
Mrs. J. W. Copeland, Hertford
Frank Hull Crowell, Lincoln
Dr. Rachel Davis, Lenoir
Percy B. Ferebee, Cherokee
Robert Hall, Davie
William B. Harrison, Nash
Mack Jernigan, Harnett
Herbert Johnson, Harnett
Walter B. Jones, Pitt
G. N. Noble, Jones
Ernest E. Parker, Jr., Brunswick
Frank Parker, Buncombe
**Claude W. Rankin, Cumberland
T. Henry Redding, Randolph
William P. Saunders, Moore
Evander S. Simpson, Johnston
Walter L. Smith, Mecklenburg
Dr. Shahane R. Taylor, Guilford
Thomas B. Upchurch, Jr., Hoke
C. M. Vanstory, Jr., Guilford
Hill Yarborough, Franklin

Class of April 1, 1969

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Graham W. Bell, Cumberland
Victor S. Bryant, Durham
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B. Atwood Skinner, Wilson
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Archie K. Davis, Forsyth
James C. Farthing, Caldwell

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* Deceased, July 28, 1965
** Deceased, January 11, 1966

Dr. Dorothy Glenn, Gaston
George Watts Hill, Durham
Mrs. J. Henry Hill, Jr., Catawba
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W. J. Lupton, Hyde
Thomas McKnight, Iredell
D. L. McMichael, Rockingham
R. D. McMillan, Jr., Robeson
Rudolph I. Mintz, New Hanover
Thomas O. Moore, Forsyth
Ashley M. Murphy, Pender
Douglas M. Robinson, Madison
R. Glenn Stovall, Person
David T. Tayloe, Beaufort
Carl V. Venters, Onslow
Henry Weil, Wayne
Macon M. Williams, Caldwell
George M. Wood, Camden

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Amos Johnson, Sampson
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T. L. Richie, McDowell
H. L. Riddle, Jr., Burke
Roy Rowe, Pender
J. Brantley Speight, Pitt
John P. Stedman, Robeson
C. Lacy Tate, Columbus
W. Frank Taylor, Wayne
Mrs. Stewart Warren, Sampson
Cameron S. Weeks, Edgecombe
Thomas J. White, Lenoir
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Executive Committee

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Miss Billie Curtis, *Assistant Secretary*

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Class of 1972: Wade Barber, Reid A. Maynard, G. N. Noble

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

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James Hatton Wahab, B.S., M.A., Ph.D., *Acting Academic Dean*

Kenneth Carroll Batchelor, B.A., C.P.A., *Business Manager*

* * *

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Mildred Elizabeth English, B.S., M.A., *Director of Student Personnel*

Lewis Robert Grogan, B.A., M.Ed., *Director of Admissions and Registration*

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Linda LaGrone, B.A., *Admissions Counselor*

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John Joseph O'Connor, *Food Service Director*

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Gary Winston Peterson, A.B., *Counselor for Student Affairs Division*

James Kenneth Sanford, A.B., M.A., *Public Relations Officer*

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Desaree Wilson Stroud, R.N., *Nurse*

Mark Felton Tinkham, A.B., M.Ed., *Administrative Assistant*

Whewell Lineback Yarbrough, B.S., *Purchasing Officer*

FACULTY

George R. Abernathy, Jr.,[1] *Professor of History*
B.S., Sam Houston State College; M.A., Ph.D., University of Texas

Paul Dean Atwell, *Instructor in English*
B.A., High Point College; M.A., Duke University

Newton Hall Barnette, *Chairman, Department of Engineering and Professor of Electrical Engineering*
B.S., Louisiana Polytechnic Institute; M.S., Virginia Polytechnic Institute; Ph.D., Cornell University

Percy Levy Bernstein, *Instructor in Mathematics (Part-Time)*
B.E., Tulane University; M.A.T., Duke University

Ruth Blackwelder, *Associate Professor of History*
A.B., Wittenberg College; M.A., University of North Carolina

LeGette Blythe, *Writer-In-Residence (Part-Time)*
A.B., University of North Carolina; Litt.D., Davidson College

Joseph Floyd Boykin, Jr., *Assistant to the Librarian*
B.S., M.S., Florida State University

Carole Causey Boyles, *Instructor in Business Education and Business Administration*
B.S., M.B.A., University of South Carolina

Michael Wiley Brantley, *Instructor in History*
B.A., M.A, University of Alabama

Saul Brenner, *Instructor in Political Science*
BA., Brooklyn College; L.L.B., Columbia University School of Law; M.A., Brooklyn College

Edith Perryman Brocker, *Chairman, Department of Nursing and Associate Professor of Nursing*
R.N., University of Pennsylvania; B.S.P.H.N., University of North Carolina; A.M., University of Chicago

[1] Absent on Leave 1966-67

Amy Marie Brooks, *Instructor in Spanish*
A.B., The Woman's College of The University of North Carolina; M.A., University of Georgia

Margaret Bryan Bryan, *Instructor in English*
A.B., Marshall University; M.A., University of North Carolina

Sherman LeRoy Burson, Jr., *Chairman, Department of Chemistry and Professor of Chemistry*
B.S., Ph.D., University of Pittsburgh

Thomas Maxie Burton, *Instructor in Biology*
B.S., M.S., Northeast Louisiana State College

Robert Dalton Byerly, Jr., *Instructor in Philosophy*
B.A., University of North Carolina; A. M., Columbia University

Elinor Brooks Caddell, *Assistant Professor of Nursing*
B.S.N.E., M.S.N., Duke University

James William Clay, *Instructor in Geography*
B.S., M.S., Marshall University

Bonnie Ethel Cone, *Professor of Mathematics*
B.S., Coker College; A.M., Duke University; Litt.D., Coker College; LL.D., Davidson College; LL.D., Belmont Abbey College

Christopher Dixon Cook, *Instructor in English*
B.A., North Carolina State University; M.A., University of Virginia

William Barnet Harold Corkey, *Assistant Professor of Philosophy and Religion*
B.A., Queen's University, Belfast, North Ireland; M.A., University of North Carolina

Susan Smythe Crane, *Acquisitions Librarian*
B.A., Pfeiffer College; M.S.L.S., University of North Carolina

Joy Anne Crocker, *Instructor in German*
B.A., Mississippi College; M.A., Middlebury College Graduate School of German, Mainz, Germany

James Carroll Crosthwaite, *Assistant Professor of Chemistry*
B.S., Anderson College; M.A., DePauw University; Ph.D., Duke University

Lloyd Dale Davis, *Instructor in Mathematics*
A.B., Ohio Northern University; M.S., University of Miami

Frank DeFelice, *Instructor in Economics and Business Administration*
B.A., Michigan State University; M.B.A., University of North Carolina

Mary Rebecca Denny, *Professor of English, Emeritus*
B.A., Salem College; M.A., Duke University

Louis Diamant, *Professor of Psychology*
B.S., M.A., New York University; Ph.D., Yeshiva University

Thomas Dennison Diamond, *Instructor in Biology*
B.S., M.A., East Tennessee State University

Frederick Jackson Dunkerley, Jr., *Associate Professor of Engineering*
B.Sc., Thiel College; M.Sc., DSc., Carnegie Institute of Technology

Dorothy Grace Dunn, *Instructor in Business Education*
A.B., Marshall College; M.A., George Peabody College for Teachers

Seth Howard Ellis, *Assistant Professor of English*
A.B., University of Delaware; A.M., University of Missouri; Ph.D., University of Southern California

Mary Rodriguez Embry, *Assistant Professor of Mathematics*
B.S., Southwestern at Memphis; M.A., University of Virginia; Ph.D., University of North Carolina

Ann Tucker Foster, *Instructor in English*
B.A., Florida State University; M.A., Vanderbilt University

Linda Louise Fowler, *Instructor in History*
B.A., Western Reserve University; M.A., University of Wisconsin

Karl Michael Gabriel, *Assistant Professor of German*
Ph.D., University of Vienna, Austria

Barbara Elaine Gaddy, *Instructor in French*
B.A.; M.A., Texas Christian University

Maud Florance Gatewood, *Assistant Professor of Art*
A.B., Woman's College of the University of North Carolina; M.A., Ohio State University

Hallie Leon Gatlin, III, *Instructor in English*
B.A., Wake Forest College; M.A., University of Iowa

Clare Henry Gibbs, *Instructor in Geography and Geology*
B.S., Syracuse University; M.S., University of Tennessee

Robert Harry Gibson, *Assistant Professor of Chemistry*
A.B., Erskine College; M.A., Ph.D., Columbia University

Cloyd Smith Goodrum, Jr.,[1] *Professor of Mathematics*
B.A.E., Rensselaer Polytechnic Institute; M.A., University of North Carolina

Ben Hall Hackney, Jr., *Assistant Professor of Education*
A.B., Duke University; M.Ed., D.Ed., University of North Carolina

John O. P. Hall, *Professor of History*
B.S., University of New Hampshire; Ph.D., Columbia University

Patricia Ann Harris, *Instructor in Sociology*
B.A., University of Southwestern Louisiana; M.A., Louisiana State University

Curt Hardin Hartog, *Instructor in English*
B.A., University of Michigan; M.A., University of California at Berkeley

Herbert Hechenbleikner, *Chairman, Department of Biology and Professor of Biology*
A.B., University of North Carolina; M.A., Ph.D., Harvard University

David Guy Herr, *Assistant Professor of Mathematics*
B.E.E., M.S., Georgia Institute of Technology; Ph.D., University of North Carolina

Carroll Ann Hicks, *Catalogue Librarian*
A.B., Meredith College; M.S.L.S., University of North Carolina

Harper Thomas Higgins, Jr., *Assistant Professor of Business Education and Business Administration*
B.S., Presbyterian College; M.Ed., University of North Carolina

Frances Bobbitt Hoyle, *Associate Professor of Spanish*
A.B., The Woman's College of the University of North Carolina; M.A., New York University

Nish Jamgotch, Jr., *Assistant Professor of Political Science*
B.A., M.A., University of Minnesota; Ph.D., The Claremont Graduate School

Rhyn Hyun Kim, *Assistant Professor of Mechanical Engineering*
B.S.M.E., Seoul National University; M.S.M.E., Ph.D., Michigan State University

Wanda Faye King, *Instructor in Mathematics*
B.S., East Carolina College; M.S., University of Notre Dame

James Richard Kuppers, *Associate Professor of Chemistry*
B.S., University of Florida; M.S., Louisiana State University; Ph.D., University of Florida

[1] Absent on Leave 1966-67

Patsy White Lacey, *Instructor in Sociology*
B.A., Northeast Louisiana State College; M.A., Louisiana State University

Miriam Almaguer Leiva, *Instructor in Mathematics*
B.S., Guilford College; M.A., University of North Carolina

David Hallam Littlejohn, *Assistant Professor of Spanish*
A.B., A.M., University of North Carolina

Victor M. Lopez, *Assistant Professor of Spanish*
B.A., Hobart College; M.A., Cornell University

Pierre Macy, *Professor of French*
Bachelier es lettres, University of Nancy; Licencié es lettres, University of Dijon; Agrégé des lettres, Docteur es lettres, University of Paris

Eleanor Mallory Markham, *Associate Professor of Mathematics*
A.B., A.M., Duke University

Lieta Marchesi Marrotte, *Instructor in Sociology (Part-Time)*
A.B., Wilson College; M.A., University of North Carolina

James Ronald Marshall, *Instructor in Mathematics*
B.S., Appalachian State Teachers College; M.Ed., University of North Carolina

Julian Dewey Mason, Jr., *Assistant Professor of English*
A.B., University of North Carolina; M.A., George Peabody College for Teachers; Ph.D., University of North Carolina

James Francis Matthews, *Assistant Professor of Biology*
A.B., Atlantic Christian College; M.S., Cornell University; Ph.D., Emory University

Joseph Darryl McCall, Jr., *Associate Professor of English*
A.B., M.A., Ph.D., University of Florida

Edward Fulton Menhinick, *Assistant Professor of Biology*
B.A., Emory University; M.S., Cornell University; Ph.D., University of Georgia

Roy Clinton Moose, *Associate Professor of English*
B.A., University of North Carolina; B.A., M.A., Oxford University, Oxford, England; Ph.D., University of North Carolina

Dan Lincoln Morrill, *Assistant Professor of History*
B.A., Wake Forest College; M.A., Ph.D., Emory University

Robert Allen Morrow, Jr., *Instructor in Mathematics*
B.S., M.S., North Carolina State College

Harvey Frank Murphy, *Instructor in Health and Physical Education*
B.S., Troy State College; M.A., Columbia University

Catherine Nicholson, *Associate Professor of English*
B.A., Flora MacDonald College; M.A., University of North Carolina; M.A., Ph.D., Northwestern University

David Eugene Nixon, *Assistant Professor of Mathematics*
B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

Walter Endre Norem, *Assistant Professor of Mechanical Engineering*
B.S., Case Institute of Technology; M.S., Ph.D., University of Tennessee

John Henry Norman, *Professor of Chemistry*
A.B., Erskine College; M.A., University of North Carolina

Edward Spaulding Perzel, *Instructor in History*
B.A., M.A., University of Cincinnati

Verne Roy Ploger, *Assistant Professor of History*
B.G.E., M.A., University of Omaha

Louise Moore Plybon, *Catalogue Librarian (Part-Time)*
B.S., Appalachian State Teachers College; B.S.L.S., M.S.L.S., George Peabody College for Teachers

James David Ramer, *Head Librarian*
A.B,. Occidental College; M.S., Columbia University

Angelo Thomas Randazzo, *Instructor in Political Science*
B.A., LaSalle College; M.A., Rutgers University

Charles Augustus Reavis, *Assistant Professor of Education*
A.B., M.Ed., University of North Carolina; Ed.D., Duke University

Robert William Rieke, *Chairman, Department of History and Political Science and Professor of History*
B.A., Carleton College;, M.A., Ph.D., University of Wisconsin

John Brawner Robbins, *Assistant Professor of History*
A.B., Hampden-Sydney College; Ph.D., Rice University

Edwin Lee Rogers, *Instructor in Economics and Business Administration*
A.B., Lenoir Rhyne College

Lady Rosa Sabates, *Instructor in Spanish (Part-Time)*
B.A., Camaguey College for Teachers; Camaguey; Doctor of Pedagogy, University of Havana, Cuba

Paul Antonius Saman, *Assistant Professor of French*
Prom. Fil., Charles University, Prague

Joseph Francis Schell, *Associate Professor of Mathematics*
B.S., University of Dayton; M.A., Ph.D., Indiana University

Mozelle Spainhour Scherger, *Serials and Documents Librarian*
B.S., Appalachian State Teachers College; B.S.L.S., University of North Carolina

Duane Philip Schultz, *Associate Professor of Psychology*
B.A., Johns Hopkins University; M.A., Syracuse University; Ph.D., American University

Morton Shapiro, *Assistant Professor of English*
A.B., M.A., University of Miami; Ph.D., University of Alabama

Joseph Austin Slechta, *Associate Professor of French*
B.A., New York University; M.A., Ph.D., Tulane University

William Alexander Smith, *Instructor in Electrical Engineering*
B.S., M.S., Clemson College

David Sohn, *Assistant Professor of Psychology*
B.A., Brooklyn College; Ph.D., University of Texas

Alva Ware Stewart, *Reference Librarian*
B.A., M.S.L.S., University of North Carolina; M.A., Duke University

Martha Lawrence Stewart, *Assistant Professor of Mathematics*
A.B., Winthrop College; A.M., Duke University

Patricia Lou Stewart, *Instructor in English*
B.A., Agnes Scott College; M.A., Ph.D., University of North Carolina

James Mervil Tanner, *Associate Professor of Physics*
B.S., M.S., Ph.D., Georgia Institute of Technology

Shirley Marie Tarlton, *Head Catalogue Librarian*
A.B., Queen's College; M.S.L.S., University of North Carolina

David Boyce Teague, *Assisant Professor of Mathematics*
B.S.E.E., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

John Pelham Thomas, *Assistant Professor of Mathematics*
B.S., Auburn University; M.A.T., University of Virginia; Ph.D., University of South Carolina

Elbert Daymond Turner, Jr., *Chairman, Department of Foreign Language and Professor of Spanish*
B.A., Davidson College; M.A., Ph.D., University of North Carolina

Thomas Coke Turner, *Instructor in Accounting*
B.S., Furman University; M.B.A., University of North Carolina

Philip Dominic Vairo, *Associate Professor of Education*
A.B., Hunter College; M.A., New York University; Ed.D., Duke University

Virginia Walker Valentine, *Instructor in English*
B.A., Texas State College for Women; M.A., Southern Methodist University

Robert Everett Vermillion, *Assistant Professor of Physics*
A.B., King College; M.S., Ph.D., Vanderbilt University

Ann Bryson Vinson, *Instructor in Biology*
B.S., M.S., North Carolina State University at Raleigh

James Hatton Wahab, *Chairman, Department of Mathematics and Professor of Mathematics*
B.S., College of William and Mary; M.A., Ph.D., University of North Carolina

William Creighton Walker, *Instructor in History*
B.A., Huntingdon College; M.A., University of Alabama

Robert Marsden Wallace, *Chairman, Department of English and Professor of English*
A.B., Wofford College; A.M., Ph.D., University of North Carolina

Burton Howard Wayne, *Associate Professor of Electrical Engineering*
B.S., Michigan State College; M.S., Ph.D., Michigan State University

Frank Rutledge Whittacre, *Assistant Professor of Education*
B.S., State University of Indiana, Pennsylvania; M.A., Ed.D., Western Reserve University

Sadie Hamrick Williamson, *Instructor in Economics and Business Administration*
A.B., The Woman's College of the University of North Carolina; M.S.. University of North Carolina

George Windholz, *Instructor in Psychology*
B.A., City of College of New York; M.A., Teachers College, Columbia University

Edyth Farnham Winningham, *Professor of Political Science*
A.B., University of North Dakota; A.M., University of North Carolina

Loy Hahn Witherspoon, *Assistant Professor of Philosophy and Religion*
A.B., B.D., Duke University; Ph.D., Boston University

Harvey Lewis Woodruff, *Instructor in Music (Part-Time)*
B.S., New York University; M.A., Columbia University

Hazel Drye Wright, *Instructor in Mathematics*
B.S., Appalachian State Teachers College; M.A., Wake Forest College

William David Wubben, *Chairman, Department of Economics and Business Administration and Professor of Economics and Business Administration*
B.Ph., M.B.A., University of Chicago; Ph.D., The Claremont Graduate School

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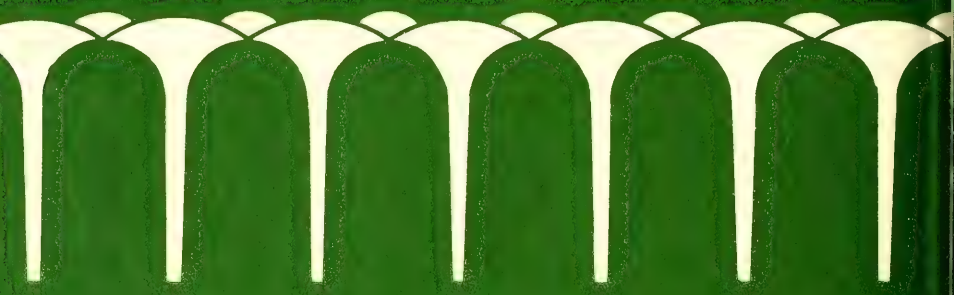

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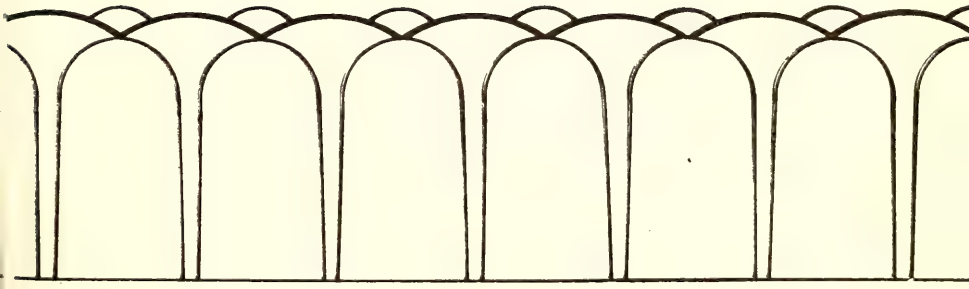

Mailing Address:

The University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

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I. THE UNIVERSITY

THE UNIVERSITY

The University of North Carolina at Charlotte is one of a number of universities organized in the latter half of the twentieth century, and yet it is a campus of the oldest state university in the United States. This gives it both the inclination to experiment and innovate and the ability to draw upon the wisdom and experience of years of tradition.

The new group of universities is urban-oriented. These campuses are situated near or in the nation's large cities. At this juncture the cities are where the action is. Thus it is appropriate that Charlotte, the largest city of the two Carolinas, have a campus of the University of North Carolina. Being near a large city, students are provided many cultural, educational, social, and employment opportunities that are not available elsewhere.

The trademark of the University of North Carolina at Charlotte is likely to become its interaction with Charlotte and other urban centers of the State.

The University of North Carolina at Charlotte came into being on July 1, 1965 as the result of legislation ratified by the 1965 General Assembly on March 3, 1965, making Charlotte College the fourth campus of the University of North Carolina. The movement which led to the new campus began with the creation in 1961 of the Governor's Commission on Education Beyond the High School. One of the questions studied by the Commission was the need for additional campuses of the University. In the meantime the President of the University had referred a request for university status made by Trustees of Charlotte College to the Executive Committee of the University Board of Trustees.

The Governor's Commission recommended guidelines for establishing new campuses, which were essentially adopted by the 1963 General Assembly. The University then conducted a study of the Charlotte area to determine the need for a campus. A University Committee found that the Charlotte area did need a campus of the University and recommended that Charlotte College be used as the base for the fourth campus.

The University Trustees approved the recommendation as did the North Carolina Board of Higher Education. Legislative approval followed on March 2, 1965.

However, the institution can trace its lineage back to 1946 with the establishment of the Charlotte Center of the University of North Carolina to provide instruction for returning World War II veterans. The Charlotte Center became Charlotte College under the Charlotte Board of School Commissioners in 1949. In 1958 the College officially was placed under the North Carolina Community College System. The voters of Charlotte and Mecklenburg County went to the polls on four occasions to vote upon themselves taxes for the support of the institution.

A 270-acre campus eight miles from the center of Charlotte on North Carolina Highway 49 was purchased on February 4, 1959, as a permanent site for the College, which had begun in borrowed space in Central High School. In the fall of 1961, the College moved to the new campus.

In May 1963 the General Assembly changed the status of Charlotte College to that of a senior college fully supported by the State. The campus was expanded from the original 270 acres to approximately 900 acres by the gift of some 500 acres by the Mecklenburg County Commissioners for the citizens of the county in the spring of 1964, supplemented by 127 acres purchased by the State of North Carolina.

Charlotte College awarded its first and only baccalaureate degrees on June 6, 1965. The University of North Carolina at Charlotte awarded its first baccalaureate degrees on May 29, 1966.

Dr. D. W. Colvard was elected the first Chancellor of the Charlotte campus on January 28, 1966. Dr. Bonnie E. Cone, who had brought the institution to university status as President of Charlotte College and served for a time as Acting Chancellor, was appointed to the position of Vice Chancellor for Student Affairs and Community Relations.

A top administrative team has been assembled, comprised of the Chancellor, the Vice Chancellor for Academic Affairs, the Vice Chancellor for Student Affairs and Community Relations, and the Business Manager.

The 1967 General Assembly authorized an extensive building program for UNC-C. Buildings now authorized will provide the facilities required by a well rounded university campus. The buildings include two 12-story dormi-

tories to house a total of 1,000 students, a health and physical education building, a major addition to the Library, a fine arts building, and a cafeteria. During the next few years the campus will be a vast construction site as these projects leave the drawing boards and take form.

Friends of the University of North Carolina at Charlotte play a vital role in its life. Private gifts are expected to help the institution attain its goal of excellence. A "Patrons of Excellence" program, under which donors give $1,000 a year for 10 years, is being used to help bring outstanding educators to the campus, to purchase needed volumes for the Library, and to provide scholarships for deserving students. Three endowed professorships have been established with gifts of $100,000 each from three donors. A $100,000 gift from the Belk interests is providing for construction of a bell tower to furnish melody and an attractive upward thrust to the center of the campus.

The University's faculty members are for the most part young and highly qualified. Faculty members at UNC-C have accepted the challenge of building a new institution. They are willing to sacrifice the stability they might have found in long established universities for the satisfaction of having helped to build a reality from a dream.

At UNC-C there are opportunities for warm and helpful relationships with faculty members.

Vice Chancellor McEniry has an informal session with students.

THE EDUCATIONAL PROGRAM

The educational program is a broadly based one under the guidelines established by the University Trustees on May 23, 1966. Those guidelines allow the University of North Carolina at Charlotte to "provide graduate and undergraduate instruction and research opportunities in the basic natural sciences, the social sciences, the humanities, the fine arts, and teacher education." As a campus of the University of North Carolina, this institution is one of only four in the State which is allowed by law to award the doctor's degree.

At this point the University of North Carolina at Charlotte is authorized to award the degrees of bachelor of arts, bachelor of science, and bachelor of science in engineering. Graduate work is offered on the campus in cooperation with other campuses of the University, but this institution plans to begin its own graduate work almost immediately.

The organizational structure of the University of North Carolina at Charlotte provides for a College of Arts and Sciences with most existing departments reporting to its dean. However, the departments of economics and business administration, engineering and nursing will remain outside the College of Arts and Sciences and will develop independently.

ACCREDITATION

The University of North Carolina at Charlotte is fully accredited by the Southern Association of Colleges and Schools and by the North Carolina Association of Colleges and Universities. Accreditation by the Southern Association is retroactive to the first four-year graduating class of 1965.

LOCATION

The University of North Carolina at Charlotte is located on a 900-acre campus eight miles from downtown Charlotte on N. C. Highway 49 near its intersection with U. S. Highway 29 northeast of Charlotte. The campus is bounded on the far west by Interstate Highway 85. With a population of 258,000, Charlotte, in Mecklenburg County (population

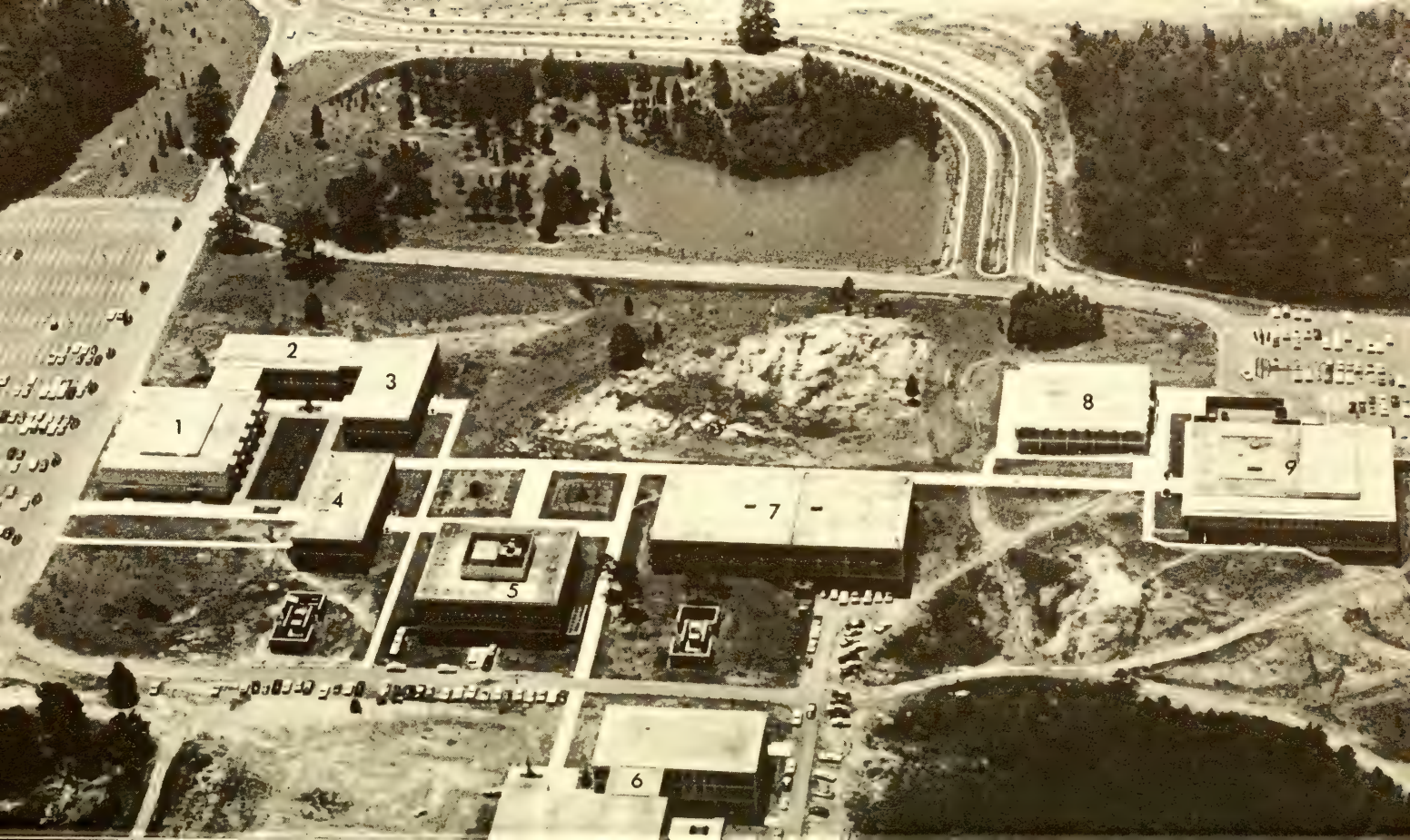
333,000), North Carolina, serves as a center of commerce, industry and culture of a twenty-four-county area.

THE CATALOGUE

The catalogue is not an irrevocable contract. Regulations printed herein are subject to change by the faculty at any time. University regulations are policy statements to guide students, faculty, and administrative officers is achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authority with the interests of the students and the institution in mind. Students are encouraged to seek information as they require it about the application of any policy.

NONDISCRIMINATION

The University of North Carolina at Charlotte will accept all qualified students, within budgetary limitations, without regard to race, creed, color, or national origin and recruits faculty and staff and conducts all programs on the same basis.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UNIVERSITY BUILDINGS

Code to Buildings in aerial view at left.

1. Building C
2. Building B
3. Building A
4. Language Building (L)
5. W. A. Kennedy Building (Science)
6. Engineering-Mathematics-Computer Building
7. J. Murrey Atkins Library
8. Administration Building
9. University Union

Architect's rendering of dormitory.

Buildings Authorized for Construction

Funds have been authorized for the following buildings. Planning is well under way on these projects, and some will be under construction by early 1968.

A. Dormitory to house 500 men

B. Dormitory to house 500 women

C. Cafeteria

D. Health and Physical Education Building (Gymnasium)

E. Major addition to Library

F. Fine Arts Building

G. The "D" wing of the Liberal Arts Complex

H. Belk Tower (Approximately 150 feet high—will house carillon)

1968

SEPTEMBER

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1969

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SCHEDULE OF CLASSES

Day classes are scheduled normally from 8:30 a.m. until 5:30 p.m., Monday through Friday.

Evening classes are scheduled from 6:00 p.m. until 10:30 p.m., Monday through Thursday.

ACADEMIC CALENDAR, 1968-1969

The Academic Calendar consists of two semesters (Fall and Spring) and a summer session (First and Second Term). The word semester used in this catalogue refers to the Fall and Spring semesters only.

FALL SEMESTER

September 9	Monday	Faculty and Staff Convocation
September 9-10	Monday-Tuesday	Orientation for entering freshmen and transfers
September 11	Wednesday	Advising and Registration
September 12	Thursday	Classes begin
September 18	Wednesday	Last day to add courses for credit
September 25	Wednesday	Last day to withdraw (or drop a course) with refund
October 9	Wednesday	Last day to drop courses without grade evaluation
October 31	Thursday	Reports of unsatisfactory grades by faculty
November 26	Tuesday	Last day to file degree applications for June 1, 1969, commencement
November 26	Tuesday	Last day of classes before Thanksgiving holidays
December 2	Monday	Classes resume
December 2-6	Monday-Friday	Preregistration for spring semester 1969
December 18	Wednesday	Last day of classes before Christmas holidays
January 6	Monday	Classes resume
January 15	Wednesday	Last day of classes
January 16	Thursday	Reading period
January 17	Friday	Final examinations begin
January 24	Friday	Final examinations end

SPRING SEMESTER

January 29	Wednesday	Advising and Registration
January 30	Thursday	Classes begin
February 5	Wednesday	Last day to add courses for credit
February 12	Wednesday	Last day to withdraw (or drop a course) with refund
February 26	Wednesday	Last day to drop courses without grade evaluation
March 18	Tuesday	Reports of unsatisfactory grades by faculty
April 3	Thursday	Last day of classes before Easter holidays

April 9	Wednesday	Classes resume
April 28-May 2	Monday-Friday	Preregistration for summer session and fall 1969
May 21	Wednesday	Last day of classes
May 22	Thursday	Reading period
May 23	Friday	Final examinations begin
May 30	Friday	Final examinations end
June 1	Sunday	Commencement

SUMMER SESSION, 1969

First Term

June 9	Monday	Advising and registration
June 10	Tuesday	First day of classes
June 12	Thursday	Last day for registration and last day to withdraw (or drop a course) with refund
June 16	Monday	Last day to drop courses without grade evaluation
July 4	Friday	Holiday
July 7-9	Monday-Wednesday	Preregistration for second summer term and fall semester, 1969
July 15	Tuesday	Last day of classes
July 16-17	Wednesday-Thursday	Final examinations

Second Term

July 21	Monday	Advising and registration
July 22	Tuesday	First day of classes
July 24	Thursday	Last day of registration and last day to withdraw (or drop a course) with refund
July 28	Monday	Last day to drop courses without grade evaluation
August 11-13	Monday-Wednesday	Preregistration for fall semester, 1969
August 25	Monday	Last day of classes
August 26-27	Tuesday-Wednesday	Final examinations

PREREGISTRATION FOR NEW STUDENTS, FALL 1969

July 7-9	Monday-Wednesday	Preregistration for new students entering in the fall semester 1969
August 11-13	Monday-Wednesday	Preregistration for new students entering in the fall semester 1969

II. ACTIVITIES

STUDENT ACTIVITIES

INTRODUCTION

Students at the University of North Carolina at Charlotte are encouraged to participate in extracurricular activities. Student Government, the Union, and the publications in particular are not only a vital part of the operation of the institution, but they are also believed to be an important part of the educational experience of the student. Students are advised to choose activities wisely and balance academic activities with service, religious, athletic, social and recreational activities.

STUDENT GOVERNMENT

The Student Government Association provides students an early experience in governmental affairs. Students will find their work in Student Government a useful background for later public service. The history of Student Government is as old as the institution itself. The University encourages student participation in the affairs of the University and is currently working with student leaders in the development of residence halls organization and government.

Students serve on some faculty and administrative committees. Students represent the University in a variety of ways, such as assisting with tutorial projects in the community. The leaders of Student Government work to represent the student body and to develop the students' pride in and loyalty to their University. The Student Government Association is a member of the United States National Students Association (NSA).

Student Government consists of three divisions:

1. The Executive Council, made up of the President, the Vice President, the Secretary, and the Treasurer of the student body.

2. The Student Legislature, composed of the President, the Vice President, and five representatives from each of the four classes. The Vice President serves as a non-voting chairman.

3. The Student Court, established for the purpose of judging violations of the rules and regulations of the University and the Student Legislature and administering the Honor Code. This Code, adopted by the Student Body during the fall semester of 1965, reads as follows:

> "Under the Honor Code you are on your honor not to cheat, lie, or steal; and if you see another student doing so you are on your honor to report the individual and the circumstances to the appropriate student agency."

UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students,

faculty, administration, alumni, and guests. The Union is part of the students' educational program. It serves as a laboratory for citizenship in much the same way that Student Government does. It helps students develop good taste in social and cultural activities.

The Union is the chief sponsor of most social and cultural events on the campus. Activities are planned with the goal of developing well rounded individuals. Every student is a member of the Union organization and is encouraged to participate in its activities.

The Union is governed by a policy-making body known as the Governing Board which consists of four faculty members and the student officers of the Union.

ATHLETICS

Athletic activity at the University of North Carolina at Charlotte is believed to be a necessary part of balanced student life. As a result, the institution fields teams in an ever-growing list of sports under the nickname of "Forty-Niners." These include basketball, bowling, cross-country, golf, tennis, track, and wrestling. Other sports will be added in time.

Contests are scheduled in the Dixie Intercollegiate Athletic Conference of which UNC-C is a charter member, and with other similar institutions.

A health and physical education building authorized by the 1967 General Assembly will give the institution one of the most outstanding physical plants for the athletic and physical education programs to be found in the Southeast.

HOBBIES

Opportunities are provided for students to develop hobbies they can pursue for avocational or recreational purposes after graduation. Students can learn such crafts as woodworking, painting, ceramics, and leatherworking. Darkrooms are available for photography.

INTRAMURALS

An intramural sports program is designed to help students develop their bodies as well as their minds. Students are encouraged to participate so that exercise and sports skills developed in college can be carried into later life to promote physical well being. The health and physical education facility will also be a valuable addition to the intramural program.

RELIGIOUS LIFE

A number of religious groups in Charlotte and North Carolina contribute to a Chaplaincy program at the University of

North Carolina at Charlotte. Funds they contribute make possible programs of religious content and significance. A faculty member serves as the coordinator of religious activities. Individual student religious groups are encouraged on the campus.

SOCIAL LIFE AND RECREATION

Students have a variety of opportunities for enjoyable social activities and recreation. Dances range from highly informal to formal. Social and recreational activities center in the University Union. Activities include coffee hours, movies, picnics, receptions, game tournaments, concerts and lectures. Student leaders and often the student body at large are included in many faculty and administration functions. Social life is designed to be wholesome but lively.

THE UNIVERSITY FORUM COUNCIL

The University Forum Council is responsible for one of the highlights of the University year, the annual University Forum, begun with a successful program in the spring of 1966. The Forum brings outstanding national figures to the campus to examine key issues in depth. The University Forum Council is comprised of representatives of the student body, the faculty, the administration, and the community. Proceedings of the Forum are usually published in booklet form.

PUBLICATIONS

BOARD OF STUDENT PUBLICATIONS

The Board of Student Publications, also known as the Publications Board, is comprised of student, faculty, and administration members and representatives of the student publications. Its purposes are to promote the objectives of each publication and to guarantee editorial freedom to the publications within the framework of responsible journalism.

THE BARNSTORMER

The *Barnstormer,* a magazine of literary content, provides an outlet for creative writing talent on the campus. The broad scope of subject matter allows for a wide variety of contributions.

NEWSPAPER

Students publish a weekly newspaper, *The Carolina Journal,* to cover campus news and provide journalistic experience. Experience on a campus newspaper plus a major in one of the humanities often provides the background for a career on a newspaper or magazine. The newspaper provides a vital service to the entire campus family by keeping its members informed.

YEARBOOK

The yearbook, *Rogues 'N Rascals* is another publication which provides both a service to the University and an opportunity for student journalists to gain essential skills for later careers. The yearbook is designed to provide a valid picture of the spirit of campus life. It is valued as an organized pictorial record and as an opportunity for creative student journalists to produce a book which is aesthetically pleasing and representative of the times. A copy of *Rogues 'N Rascals* is provided to all students taking seven or more semester hours of work each semester during the academic year. Others may obtain a copy upon payment of $7.50.

Students celebrate the coming of city water to campus with mock wedding.

ORGANIZATIONS

ACADEMIC

The purpose of the *University Chapter of the Student National Education Association,* which is affiliated with the North Carolina Education Association, is to inform students of the possibilities offered in the field of education, to encourage qualified students to become teachers, and to provide students with an opportunity to discuss educational issues and problems.

The Engineers' Club was formed in the fall of 1960 to give the student engineer a greater understanding of all phases of engineering. Through the assistance of the Charlotte Engineers' Club, examples of emerging engineering theory are presented in the form of practical applications.

Chez les Francais, the French Club, is open to all students interested in the language, customs and culture of the French people. Social and educational meetings are held for the purpose of broadening the members' knowledge of French civilization and increasing their conversational ability in the French language.

El Club Espanol is open to students interested in fellowship and conversation in Spanish. The meetings are informal and are usually conducted in both Spanish and English. Frequently Spanish speaking guests talk to members of the club about the Hispanic countries. The students also participate in the presentation of plays, songs, dances, and films.

The Chemical Society is open to students with a deep interest in chemistry and is designed to afford opportunity for members to become better acquainted, to secure the intellectual stimulation that arises from professional association and to instill a professional pride in chemistry and chemical engineering.

The Business Club is open to students majoring in business who have completed their freshman year. Purposes include increasing knowledge and interest in the practical application of business practices, gaining insight into the business world, and stimulating fellowship among members through mutual help and social activities.

The *Senior Classical League* has as its objective the promotion of the study of the classics at the University.

The Student Nurse Club is open to students majoring in nursing. The purpose shall be to regulate all matters pertaining to the life of the students of the Department of Nursing not under the jurisdiction of the faculty; to increase a sense of individual responsibility; and to cooperate with the faculty in creating and maintaining high ideals for the nurses of the University.

The Psychology Club is open to any interested student, and the purpose is to promote an interest in psychology and a better understanding of the field of psychology and its opportunities by programs and speakers.

ALUMNI

Graduating seniors of the University of North Carolina at Charlotte are inducted into the Alumni Association. The alumni of Charlotte College have been essentially the alumni of the University of North Carolina at Charlotte, but as additional classes are graduated the University will count increasingly on their support. Early involvement in alumni activities is encouraged.

ATHLETICS

The *Fencing Club* is organized to promote interest in the sport of fencing.

The Judo and Kung-Fu Society is open to interested students and faculty members. The purpose is to encourage student interest in the martial arts, and through this means, promote student participation in University functions; to demonstrate the philosophy of the oriental martial arts, and the merits of physical and mental fitness.

INTEREST

The *Collegiate Council for the United Nations* seeks through discussion groups and inter-campus meetings to gain an understanding of the activities of the United Nations and of the problems facing its member nations. Its broader purpose is to encourage student interest in international affairs.

Its membership is open to all students, and foreign students are particularly urged to take part in the activities of the Council.

SERVICE

Circle K is a men's service organization that seeks to develop activities that will be of significant value to the university. Students may ask to join Circle K or they may be asked by other Circle K members to become affiliated. The University Chapter is sponsored by the Mecklenburg Kiwanis Club.

Alpha Phi Omega, a national service fraternity, is open to men students with past experience in scouting, YMCA, and other service organizations of this nature. Its purposes are to develop leadership, to promote friendship, and to provide service to chapter, campus, community and country.

Rotaract Club is a men's service organization sponsored by the Rotary Club to promote leadership and community responsibility.

SCHOOL SPIRIT

A team of nine *Cheerleaders* is selected each year to

support the athletic teams and promote school spirit in all activities.

The *Pep Club* is open to any interested student. The purpose is to promote school spirit.

THE BARNSTORMERS

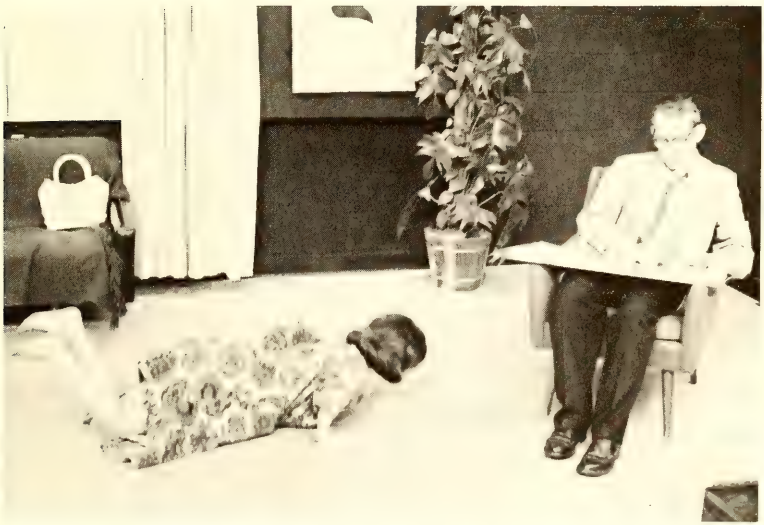
The objectives of the *Barnstormers* are promoting and displaying quality works in writing and art on campus.

MUSICAL

The University Chorus, which was re-organized in 1956, has added much to the atmosphere of the school. The members of this group meet weekly with a dual purpose of enjoying singing together and improving their musical abilities. The Chorus furnishes musical programs for special events during the year. One semester hour of credit may be earned for each semester of participation. Only four semester hours may be credited toward a degree.

ADVISORY

The Freshman Advisory Committee has a dual purpose: to orient new students in the way of the University and to assist the faculty during registration. More than one hundred students are selected by the Student Legislature to serve on this committee.



A university performance of "An American Dream."

POLITICAL

The *Young Democrat Club* and the *Young Republican Club* give the student an opportunity to engage in practical politics as well as to hear speakers from local, state, and national levels of our political parties. Membership is open to all interested students.

The Student Party and *The University Party* are organized to promote student interest and participation in campus politics, including endorsement of candidates for campus elective offices and their platforms. Any student may join either, but not both, of the parties.

RELIGIOUS

The Baptist Student Union is organized to involve students in responsible church membership and in denominational understanding and participation and to lead them to a Christian commitment.

III. FACILITIES AND SERVICES

STUDENT HOUSING

Preparations for construction of residence halls to house 500 men and 500 women are nearing final stages at the University of North Carolina at Charlotte. For the first time, the University will be able to house students on campus.

Students may make their residence plans on the following basis:

1. Construction of residence halls will begin at a very early date and will be ready for full occupancy no later than September 1969.
2. Students may make plans now to attend the University with the assurance that they will be able to apply for dormitory housing at least by the fall of 1969. In the meantime, they will be helped to find housing in the community until the residence halls are ready, which may be during the 1968-69 academic year.
3. Questions concerning the reservation of space should be directed to the Dean of Students.

THE LIBRARY

The J. Murrey Atkins Library is at the heart of the development of the University of North Carolina at Charlotte. A major addition to the present building, authorized by the 1967 General Assembly, will be the foundation upon which an institution of excellence will be built.

The library has an open-shelf collection of approximately 80,000 bound volumes and 50,000 volumes in microform. Some 2,000 journals are subscribed to on a continuing basis. Named a depository for government documents in 1964, the library receives each year thousands of publications printed at the Government Printing Office. Back files of the *New York Times*, the *Charlotte News*, the *Charlotte Observer* and other major newspapers are available on microfilm. Sound recordings and some motion pictures are also available. In addition, a general pamphlet file as well as a curriculum materials file contain non-book materials of value to all students. The latter file is particularly useful to students who plan to teach in elementary and secondary schools.

A special collection of books, periodicals, and other materials relating to North and South Carolina is housed on the second floor. The archives collection includes manuscripts, photographs, and other material relating to the history of the University.

The Library of Congress classification system is used for the arrangement of books and periodicals in the Atkins Library.

Students and faculty members have at their service a reference collection and a reference librarian to guide them to needed information.

Facilities for obtaining both positive and negative copies of library materials are available. Books and periodicals not available in the Atkins Library may be obtained from other libraries through Inter-library Loan, photocopies usually being substituted for articles of less than twenty pages.

Exhibits featuring the work of both campus and community artists are frequently presented in lobby areas, as are special displays of library materials.

The library provides students with general and recreational reading materials in addition to materials directly related to classroom work. Comfortable reading areas are provided throughout the building. Student carrells and tables are provided for concentrated study. Microfilm readers are provided for materials requiring their use.

The Atkins Library collection contains some rare works, some beautifully printed and bound works and some books autographed by important persons.

Friends of the library have played a significant role in developing the present collection. Gifts of money and volumes are a vital part of the library's resources.

THE UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program. The Union provides for the services, conveniences, and amenities the members of the University family need in their daily life on the campus and for getting to know and understand one another through informal association outside the classroom.

The Union Building houses the bookstore, cafeteria, games room, lounge-gallery area, a large multi-purpose room with facilities for dances, lectures, films, and banquets, meeting rooms, offices of student government and major publications, hobby shops, and an information center.

THE BOOKSTORE

In addition to required textbooks, the campus bookstore makes available paperback books for leisure reading, records, sweatshirts and jackets, campus emblems, and routine school supplies.

TRANSPORTATION

Charlotte City Coach Lines provides bus transportation from Charlotte to the campus on a regular schedule, connecting with established routes. Detailed information regarding routes, times

and fares may be obtained from the main office of the Charlotte City Coach Lines or at the University Union Information Center. Weekly passes may be purchased at either location.

DINING FACILITIES

The cafeteria in the Union building serves meals and snacks from 7:30 a.m. to 7:00 p.m., Monday through Thursday, and from 7:30 a.m. to 3:00 p.m. on Friday.

UNIVERSITY COUNSELING SERVICE

The Counseling Service offers professional assistance to students on a voluntary basis. Counseling helps students to deal effectively with personal-emotional concerns and educational-vocational decision-making.

An occupational-educational information library is maintained by the Counseling Service.

EDUCATION FOR THE VOCATIONALLY HANDICAPPED

Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance, medical treatment and placement, and training or scholarships which cover the costs of training. Payment of University expenses such as books, fees and tuition may be available. All the services are available at no cost to the individual who qualifies.

A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by telephoning the Vocational Rehabilitation Office, located in Room 206, 517 Insurance Lane, at 375-8686.

PLACEMENT SERVICE

The Placement Service for graduates is centered in the Office of Student Affairs. This Office maintains information on positions available for graduates and arranges for interviews between prospective graduates and employers during the spring semester. The Office seeks to develop personal data for each prospective graduate during his senior year and maintains a set of credentials which the graduate may have sent to prospective employers over the years. Although this Office coordinates the placement work involving prospective teachers, the members of the Department of Education are primarily responsible for the placement of teachers.

COMPUTER CENTER

The Computer Center at the University houses an IBM System/360 model 30 computer system which is among the most modern third generation digital computers. The center is maintained in a semi-open shop fashion for students and faculty members with support provided to those who wish to use the computer.

Students are encouraged to use computing as a new resource in learning. As a learning resource, computing enables the student to deal with realistic problems rather than oversimplified models and frees time for thought and insight by lessening the time spent in the drudgery of problem solving and in the analysis of data.

IV. ADMISSIONS, ACADEMIC REGULATIONS, COST AND FINANCIAL AID

ADMISSIONS AND ACADEMIC REGULATIONS

REQUIREMENTS FOR ADMISSION

GENERAL ADMISSION REQUIREMENTS

1. Satisfactory evidence of good character.
2. Evidence of good physical and mental health.
3. Application fee of $10.00. (See page 49.)
4. Satisfactory record of scholastic achievement.
5. Additional requirements according to the type and level of admission as indicated below:

ADMISSION TO FRESHMAN STANDING

1. Applicants must present a record of graduation from an accredited high school or preparatory school. The form for the secondary school record which is sent to each applicant with his application blank must be executed and returned to the Office of Admissions by the high school principal or counselor.
2. Applicants must present sixteen acceptable units, as required by the degree program for which he applies. Only three of these sixteen units may be in nonacademic or vocational subjects, such as home economics, agriculture, shorthand, typewriting, or bookkeeping.
3. Satisfactory scores on the Scholastic Aptitude Tests of the College Entrance Examination Board. Each applicant for admission to the freshman class is required to take and make satisfactory scores on the Scholastic Aptitude Tests and to have the Educational Testing Service send the official examination score reports directly to the Director of Admissions. A high school senior applying to the University must take the Scholastic Aptitude Tests during his senior year, preferably in December or January.
4. The principal or counselor of the secondary school must furnish a satisfactory recommendation. Personal data is to be submitted directly to the Office of Admissions by the principal or counselor on the application form which is sent each applicant.
5. Application fee of $10.00. See page 49.

ADMISSION OF OUT-OF-STATE STUDENTS

The number of entering undergraduate students that may be admitted to the University from outside the state in any semester is limited to 15 per cent of the undergraduate students admitted during the semester.

Out-of-state students who are children of alumni of the University are expressly exempt from this limitation with the proviso that they may be required to pay the regular out-of-state tuition.

ADMISSION OF TRANSFER STUDENTS

TRANSFER FROM COLLEGE OR UNIVERSITY

1. An official transcript of record from each college or institution beyond the high school attended, showing honorable dismissal, should be sent directly to the Director of Admissions. Also recommendations should be sent from all institutions previously attended.
2. To be admitted as a non-freshman transfer student the applicant must have acquired sufficient credits at an accredited institution to have the equivalent of sophomore standing at The University of North Carolina at Charlotte. In no case shall less than 24 semester hours be considered the equivalent of sophomore standing.
3. To be admitted with transfer credit:
   a. An applicant must have a "C" average (2.0 based on an A grade being equated at 4 points according to our method of computation) or better on all the courses taken at institutions attended.
   b. An applicant must have at least a "C" grade average on all courses that are acceptable for evaluation.
   c. Only courses with a grade of "C" or better may be accepted for transfer credit.
4. Transfer students may be accepted as freshmen only when (1) they meet all entrance requirements of freshmen including satisfactory scores on the scholastic aptitude test of CEEB and (2) meet the conditions in 3. (a), (b) and (c) above.
5. Applicants may be asked to take special tests as a condition of admission.
6. No exceptions shall be made without the approval of the

faculty admissions committee of the University of North Carolina at Charlotte.

TRANSFER WITHIN THE CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

Transfer applicants from other campuses of the consolidated University of North Carolina are considered for admission on the basis of different qualitative academic requirements.

TRANSFER FROM JUNIOR COLLEGE

Transfer students entering the University after attending a junior college will receive no more than 66 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Arts degree and no more than 70 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Science and Bachelor of Science in Engineering degrees.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Prescribed courses for admission to candidacy for the degree of Bachelor of Arts or Bachelor of Science are:

English	4 units	Natural Science	1 unit[3]
Mathematics	2½ units[1]	Electives	4½ units
Foreign Language	2 units[2]		
United States History and Social Science	2 units	(Total)	16 units

[1] The 2½ units of Mathematics must include 1 unit of Plane Geometry or the equivalent in integrated courses.
[2] Two units in the same Foreign Language are required.
[3] The Natural Science presented must represent one year with laboratory.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Prescribed courses for admission to candidacy for the degree of Bachelor of Science in Engineering are:

English	4 units	Natural Science	1 to 2 units
United States History and Social Science	1 to 2 units	Electives	3½ to 7½ units
Mathematics	3 units[1]	(Total)	16 units

[1] The 3 units of Mathematics must include:

Algebra	1½ units
Plane and solid Geometry	1 unit
Trigonometry	½ unit

or the equivalent of these in integrated courses.

Engineering students are required to have at least 450 on the Mathematics portion of the Scholastic Aptitude Test or a satisfactory score on a locally administered Mathematics examination.

DEFICIENCIES IN ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF SCIENCE, OR BACHELOR OF SCIENCE IN ENGINEERING

Admission with deficiencies in Mathematics and in Foreign Language may be granted to applicants whose records are otherwise acceptable.

Removal of deficiencies before registration for the first semester is desirable, but all deficiencies must be removed before registration for the third semester.

See Part III, *Degrees,* for Foreign Language requirements.

ADMISSION OF UNCLASSIFIED STUDENTS

An unclassified student is one who is earning University credit, but is not working toward the completion of a degree program at the University.

Students in this category must meet the same entrance requirements as regular students in order to earn University credits. As a rule, unclassified students must have the approval of the head of the department in which the courses are to be taken, to register for these courses.

Such students must abide by the same regulations as regular students. If, at a later date, an unclassified student changes to regular status, the credits earned while he was unclassified will be accepted only if he has satisfactorily completed the proper prerequisites.

ADMISSION OF SPECIAL STUDENTS

Students who do not wish to earn degree credit because of special reasons may enroll as special students without having to meet the usual entrance requirements, such as providing scores from the Scholastic Aptitude Test and meeting transfer student qualifications. They will be admitted on the following basis:

1. The student must be 21 years of age or over.
2. The student must be qualified for the course or courses for which he wishes to enroll, either by previous academic work or by experience in the military or business worlds.
3. The student must understand at the time of his registration that no work undertaken while he is classified special student may ever be counted toward a degree.
4. The student must understand that he may not deprive a degree student of a place in class.

ADMISSION OF SPECIAL STUDENTS IN TEACHER EDUCATION

Students who hold a bachelor's degree and plan to work toward a teaching certificate or certificate renewal must meet the standards set by the University for admission as well as the requirements of the Department of Education. Students should consult with the Chairman of the Department of Education for further details. See page 88.

REGISTRATION FOR AUDITORS

Any student eligible for admission may register for any class for audit. The fees are the same as for classes taken for University credit.

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit. They are, however, expected to attend class regularly. Notation of an audited class on the student's permanent record is made, but no grade will be given.

Adding or dropping an audit course is governed by the same procedures as adding or dropping a course for credit, and is processed in the same way through the Registrar's Office.

EXCEPTIONS TO ADMISSION REQUIREMENTS

Exceptions to admissions requirements are made only by the Committee on Admissions of the University.

VETERANS AND WAR ORPHANS EDUCATION

The University provides educational opportunities for veterans, war orphans, and children of totally disabled service-connected veterans. Veterans seeking training under the provisions of Public Laws 894 and 87-815 (Veterans Vocational Rehabilitation Program), Public Law 358 (Veteran's Readjustment Benefits Act of 1966), and war orphans seeking training under Public Law 634 (War Orphans Educational Assistance Act of 1956), and children of totally disabled service-connected veterans desiring benefits of Public Law 88-361 (extension of War Orphans Educational Assistance Act) must enroll for a minimum of 14 semester hours in order to receive full subsistence. Routines involving letters of eligibility, interruption of training, and the like are handled by the University through the Registrar's Office. Technical questions are referred to Mecklenburg County Veterans Service Office, 123 North Poplar Street, Charlotte; telephone number 333-8616.

Before the time of registration, each veteran or war orphan who wishes to enter the University should:

1. Make application for admission according to the procedure described on pages 16 to 20 of the catalogue. Forward to the Registrar transcripts of all previous high school and/or college courses completed before or after induction or as a part of Army or Navy basic training or specialized training program, and also records of courses taken by correspondence through the United States Armed Forces Institute. The latter records may be secured from the United States Armed Forces Institute, Madison, Wisconsin. All transcripts and records should be sent directly from the school, college, or other agency to the University.

2. Make application through the local V.A. or Veterans Service Office for a Certificate of Eligibility and Entitlement.

War orphans training under Public Law 634, children of totally disabled service-connected veterans training under Public Law 88-361 and veterans training under Public Law 358 will receive an educational and training allowance each month from the government to meet part of the expenses of their training and living costs. Tuition, fees, books, supplies and equipment will not be paid by the government; instead, they will have to be paid out of the monthly educational and training allowance. Veterans training under Public Laws 894, 87-815 will be furnished tuition, fees, books and supplies as determined by the V.A. and school officials. A veteran or war orphan or child of a totally disabled service-connected veteran will receive his monthly allowance sometime after the end of each month of training completed. Before the Veterans Administration can pay him, the law requires a certification from the trainee and the University that he was enrolled in and was pursuing his course during that period. Veterans, war orphans and children of totally disabled service-connected veterans attending the University are required to maintain satisfactory academic achievement and attendance.

COLLEGE ENTRANCE EXAMINATION

All candidates for admission will be required to present satisfactory scores on the Scholastic Aptitude Test of the College Entrance Examination Board.

Arrangement for the tests is the responsibility of the applicant and should be made with the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey, as early as possible, preferably seven to eight weeks before the test date. Early registration allows time for clearing up possible irregularities which might otherwise delay the reports.

During early 1968, the College Entrance Examination Board will administer tests on the following dates:

Saturday, January 13, 1968	Saturday, May 4, 1968
Saturday, March 2, 1968	Saturday, July 13, 1968

The Scholastic Aptitude Test will be given at 8:30 in the mornings, while the afternoons, beginning at 1:30, are re-

served for not more than three Achievement Tests on any one date, or not more than any two Achievement Tests if the Writing Sample is being taken that day.

The *Bulletin of Information,* with application blanks, distributed without charge by the College Entrance Examination Board, will be sent to all secondary schools that present candidates for the tests. The applications may be used for any College Board administration involving the SAT, Achievement Tests, and the Writing Sample. Booklets describing the tests and giving sample questions, explanations and answers, and score interpretation booklets for counselors and students are distributed in quantity to secondary schools without charge.

For students returning from the Armed Services or who find it impossible or difficult to take the Scholastic Aptitude Test on one of the regularly scheduled dates, the University provides for institutional administrations of the test. Further information may be obtained from the Testing Service of the University.

ADVANCED PLACEMENT COURSE CREDIT

Any student may apply for course credit in appropriate subjects if he has had an Advanced Placement Course in secondary or preparatory school, and has received a score of four or five on the Advanced Placement Test. These tests are given in May of each year by the College Entrance Examination Board.

ACADEMIC REGULATIONS

GRADING

The unit of measurement of university work is the semester hour. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour.

Letters are used to indicate the quality of work done. Each letter carries a quality point value for each semester

hour of work attempted. The meaning of each letter with its accompanying quality point factor is:

Letter	Description	Quality Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	0
W	Withdrawal	0

QUALITY POINT RATIO

A student's quality point ratio at the University of North Carolina at Charlotte is determined by multiplying the number of quality points for each grade by the number of hours received in that course and adding all accumulated quality points together, then dividing by the total number of hours the student has attempted, except those for which the student has received a grade of W. In computing the quality point ratio, only those credits attempted at one of the campuses of the University of North Carolina are included.

GRADE OF I

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester in residence, but no later than twelve months after the end of the term in which the I was assigned. If the I is not removed during the specified time, a grade of F is automatically assigned.

GRADE OF W

No grade will be given for a course dropped on or before the last day to drop courses without grade evaluation. When a student withdraws from a course after that date, as indicated on the Academic Calendar, but before the end of a semester, and if in the opinion of his instructor he is pass-

ing at the time of withdrawal, he will receive the grade of W. Courses given the grade of W do not count as hours attempted. The time of withdrawal is the time the drop card is accepted by the Records Office.

WITHDRAWAL

Any student who leaves the University before the close of the term, without written notification to the Records Office, will receive a grade of F in all courses.

The student should notify the Records Office immediately upon leaving the University.

ATTENDANCE

The instructional work of the University is designed for class attendance, and it is assumed that students will be present. Students who miss classes will be responsible for the work of those periods. A missed test may cost the student the advantage of a grade to be counted toward the final estimate since instructors are not required to give make-up tests.

No student may expect full credit unless he has at least attended 75 percent of the total class hours.

CLASSIFICATION OF STUDENTS

At the beginning of the fall semester regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows: Freshman, 1-23 semester hours; sophomore, 24-51 semester hours; junior, 52-89 semester hours; senior, 90 or more semester hours.

REQUIREMENTS FOR CONTINUED ENROLLMENT

As a general rule, each student will be allowed to remain at the University of North Carolina at Charlotte for the first two semesters following his first enrollment, or until 30 semester hours have been attempted at this institution, whichever happens last.

As a general rule, the Summer Session at this institution shall be open to all students previously enrolled here, in-

cluding students academically ineligible to continue during the regular academic year.

University policies require that a student who is not making satisfactory progress be suspended, with the exception stated in paragraph one of this section.

There are procedures for the removal of academic suspension. Information on requirements for continued enrollment and removal of academic suspension is available from the Office of Admissions and Registration and from the office of the Vice Chancellor for Academic Affairs.

REQUIREMENTS FOR READMISSION

Students entitled to honorable dismissal and in good standing who were previously enrolled at the University of North Carolina at Charlotte, but who did not complete the previous semester at the University, should apply for readmission. If students have earned credits at another college or university since last attending the University of North Carolina at Charlotte, they must submit an official transcript of credit from that institution for consideration for readmission.

REGISTRATION FOR CREDIT

Registration for credit in any course is limited to the first week of a semester and the first three days of classes of a summer term. No credit will be given to a student for a course unless he is properly registered for it.

COURSE LOAD

Five subjects of not less than fifteen semester hours total constitute a normal full semester program, but a student may register for less work. Any student carrying twelve or more semester hours will be considered a full-time student by the University. However, many outside agencies, such as the Veterans Administration, require more than the minimum of twelve semester hours.

Course load is dependent on two factors: the scholastic ability of the student as reflected by his scholastic record,

and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than 7 semester hours.

ADDING OR DROPPING A COURSE

In order to add or drop a course after the registration period, a student must secure written permission from his advisor and complete the necessary procedure as prescribed by the Registrar's Office. No student will be permitted to add a course or change sections of a course after the first week of a semester or the first three days of classes in a summer term.

A student who withdraws from a course after the last day to drop courses without grade evaluation, but before the end of a semester, will receive a grade of W if in the opinion of his instructor he is passing at the time of withdrawal, and will receive a grade of F if in the opinion of his instructor the student is failing the course at the time of withdrawal. (See *Grade of* W, p. 40.)

ASSIGNMENT OF ACADEMIC ADVISORS

Each student entering the University of North Carolina at Charlotte is assigned an advisor. Usually the advisor will be in the major field chosen by the student. However, advisors will be chosen from a special pool for those students who have not chosen a major field.

CHANGING OF DEGREE AND MAJOR

A student may change from one degree or one major to another with the approval of the chairman of the department of his new major and of the academic vice chancellor.

REQUIREMENTS FOR GRADUATION

A minimum of 126 semester hours of work is required for graduation with a baccalaureate degree. For information on degrees see pages 59-66.

RESIDENCE REQUIREMENTS

The minimum residence requirement for a Bachelor's Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University. Exception to either of these hour provisions may be made upon approval of the student's major department in consultation with the department offering the course or courses in question and with the approval of the academic vice chancellor.

Course work taken in residence shall be construed to mean course work offered by the University of North Carolina at Charlotte and taken on the Charlotte campus.

TRANSCRIPTS OF RECORDS

Upon request of the student, a transcript of academic credits earned at the University of North Carolina at Charlotte will be sent to any other college or university, provided that all accounts with the University have been settled satisfactorily.

Each student is entitled to one free transcript of his work regardless of how early in his academic career the request may be made. A student requesting an additional transcript should enclose one dollar for this service. Transcript request should be made to the Records Office at least one week before the transcript is needed.

PARKING

Regular parking is provided for faculty and students as outlined in the Student Handbook. A limited number of spaces are provided for visitors to the campus. Student and faculty automobiles must be registered with the University, and registration decals must be properly displayed.

STUDENT RESPONSIBILITY

Every student is responsible for the proper completion of his academic program, for familiarity with all require-

ments of the University catalogue under which he intends to graduate, for maintaining the grade average required, and for meeting all other degree requirements, including attendance at the commencement exercises at which he will receive his diploma. His advisor will counsel him, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment, and to be familiar with the information contained in the Weekly Newsletter. He is responsible for maintaining communication with the University, by keeping on file with the Records Office at all times his current address, including ZIP code, and telephone number.

Every student, while he is associated with the University, is expected to comport himself in campus and community life in a manner that will reflect credit upon himself and the University.

TUITION AND FEES

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

Tuition and fees are due and payable on the day of registration. Checks and money orders should be made payable to the University of North Carolina at Charlotte.

Students taking eight or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking less than eight hours of work during a regular semester will be charged a prorated portion of tuition and fees as specified below:

	EACH SEMESTER	
	In-State Students	Out-of-State Students
Eight or More Semester Hours		
Tuition	$ 87.50	$350.00
General Fee	62.50	62.50
Total	$150.00	$412.50

Five to Seven Semester Hours		
Tuition	$43.75	$175.00
General Fee	31.25	31.25
Total	$ 75.00	$206.25
Four or Fewer Semester Hours		
Tuition	$ 22.00	$ 87.50
General Fee	16.00	16.00
Total	$ 38.00	$103.50

No extra fees are charged for laboratory courses as such. However, an extra fee for individual music study is charged in the amount of $45.00 per semester for one hour credit.

The estimated average cost of books and supplies per semester is about $50.00. Beginning students in engineering may expect an additional cost of $50.00 to $60.00 for drawing instruments, slide rule, and supplies. Uniforms and supplies for nurses will cost approximately $100.00.

The University reserves the right to make, with the approval of the proper authorities, changes in tuition and other fees at any time.

FEES FOR SUMMER SESSION

The rates for each of the 1967 summer sessions are based on the number of semester hours taken by each student and are as follows (all fees included):

	In-state students	Out-of-state students
3 semester hours	$39.50	$ 85.50
4 semester hours	47.50	108.83
5 semester hours	55.50	132.16
6 semester hours	63.50	155.50
7 semester hours	71.50	178.83

RESIDENCE STATUS FOR TUITION PAYMENT

1. *General:* The tuition charge for legal residents of North Carolina is less than for nonresidents. To qualify for in-state tuition, a legal resident must have maintained his domicile in North Carolina for at least the six months next preceding the date of first enrollment or re-enrollment in an institution of higher education in this State.

2. *Minors:* The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

   A minor student whose parents move their legal residence from North Carolina to a location outside the State shall be considered to be a nonresident after six months from the date of removal from the State.

   For the purpose of determining residence requirements under these rules, a person will be considered a minor until he has reached his twenty-first birthday. Married minors, however, are entitled to establish and maintain their residence in the same manner as adults. Attendance at an institution of higher education as a student cannot be counted as fulfilling the six-month domicile requirement.

3. *Adults:* A person twenty-one years of age or older is eligible for in-state tuition if he has maintained continuous domicile in North Carolina for the six months next preceding the date of enrollment or re-enrollment, exclusive of any time spent in attendance at any institution of higher education. An in-state

student reaching the age of twenty-one is not required to re-established residence provided that he maintains his domicile in North Carolina.

4. *Married Students:* The legal residence of a wife follows that of her husband, except that a woman currently enrolled as an in-state student in an institution of higher education may continue as a resident even though she marries a nonresident. If the husband is a nonresident and separation or divorce occurs, the woman may qualify for in-state tuition after establishing her domicile in North Carolina for at least six months under the same conditions as she could if she were single.

5. *Military Personnel:* No person shall be presumed to have gained or lost in-state residence status in North Carolina while serving in the Armed Forces. However, a member of the Armed Forces may obtain in-state residence status for himself, his spouse, or his children after maintaining his domicile in North Carolina for at least the six months next preceding his or their enrollment or re-enrollment in an institution of higher education in this State.

6. *Aliens:* Aliens lawfully admitted to the United States for permanent residence may establish North Carolina residence in the same manner as any other nonresident.

7. *Property and Taxes:* Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the in-state tuition rate.

8. *Change of Status:* The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident student at the time of his first enrollment who, or if a minor his parents, has subsequently maintained a legal residence in North Carolina for at least six months, and (b) in the case of a resident who has abandoned his legal residence in North Carolina for a minimum period of six months.

In either case, the appropriate tuition rate will become effective at the beginning of the term following the six-month period.

9. *Responsibility of Student:* Any student or prospective student in doubt concerning his residence status must bear the responsibility for securing a ruling by stating his case in writing to the admissions officer. The student who, due to subsequent events, becomes eligible for a change in classification, whether from out-of-state to in-state or the reverse, has the responsibility of immediately informing the Office of Admissions of this circumstance in writing. Failure to give complete and correct information regarding residence constitutes grounds for disciplinary action.

10. *Adjustments:* Discretion to adjust individual cases within the spirit of these regulations is lodged in the Vice-President and Finance Officer of the University.

APPLICATION FEE

Applicants for admission are required to submit a $10.00 application fee with the application form. The fee is non-deductible and non-refundable.

LATE REGISTRATION FEE

A non-refundable fee of $10.00 will be charged for those registering after the designated registration period each semester.

GRADUATION FEE

Each member of the graduating class must pay a graduation fee of $10.00 at the time he applies for the degree. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees in absentia.

STUDENT ACTIVITIES

A part of the general fee provides students with a program of cultural, recreational, and entertainment activities.

It pays for admission to most athletic contests, dramatic productions, Union-sponsored activities, social and entertainment functions, and for subscriptions to the newspaper and literary magazine. The yearbook is provided free to all students taking eight or more semester hours of work each semester during the academic year. Other students may obtain a yearbook upon payment of $7.50.

REFUNDS

A student who officially withdraws from the University during the first two weeks of the semester will receive a refund of the full amount paid less a registration fee of $20. After the first two weeks of a semester, no refund will be made.

In each summer session, a student who officially withdraws from the University during the first three class days will receive a refund of the full amount paid less a registration fee of $10. After the first three class days of the summer session, no refund will be made.

FINANCIAL AID

Financial assistance is available to University students in several forms: scholarships, grants-in-aid, loans, and part-time employment. The University makes every effort within the limits of its available resources to encourage and assist students with seriousness of purpose to secure a University education. A financial problem should not deter a student from submitting an application for admission.

HOW TO APPLY:

The University of North Carolina at Charlotte participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. Together with other participants in CSS, we subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial

assistance are usually required to submit a copy of the Parents Confidential Statement (PCS) form to the College Scholarship Service, designating the University of North Carolina at Charlotte as one of the recipients. The PCS should be submitted prior to August 15 in order to assure that it can be processed in time for an award to be made before Fall registration. The PCS form may be obtained from a secondary school, the College Scholarship Service, P. O. Box 176, Princeton, New Jersey 08540, or the Office of Student Affairs, University of North Carolina at Charlotte.

Each applicant will be considered for all available types of financial aid—scholarships, grants-in-aid, loans, and employment. The University seeks to assign the kind of aid best suited to the needs and qualifications of the applicant. In general, the awards are approved in amounts proportionate to the demonstrated need of the student, and his satisfactory record of achievement and school citizenship.

Renewal of financial aid is based upon a student's making a clearly satisfactory record. After enrollment, the student should make application at the end of each school year for financial aid in the next year.

As in the past, the State of North Carolina is making available this year a sum of money to be used for grants to deserving students.

LOANS:

The Emergency Loan Fund was established in 1958 to provide funds which students may borrow for short-term emergencies. Students may borrow up to $25 for 30 days. There is a $.25 service charge, but no interest is charged on the loan.

The Student Loan Fund provides loans of up to $100 for a year at an interest rate of 3 per cent per annum.

The National Defense Student Loan Fund is available at the University. Full-time students in need of financial assistance may borrow up to $1,000 each year for university-related expenses such as tuition, fees, books, and transportation. The interest rate is 3 per cent per annum, but no interest is charged while the student is enrolled for at least 8 semester hours at the University. Loans must be repaid within 10 years.

Federal Guaranteed Low Interest Loans are also available. This program is similar in most respects to the National Defense Student Loan program.

Prospective Teachers Scholarship Loan Fund provides funds for prospective teachers each year. The loans are made in the amount of not more than $600. The fund is administered by the State Superintendent of Public Instruction, Raleigh, North Carolina. All scholarship loans are evidenced by notes which bear interest at the rate of 4 per cent per annum from September 1 following fulfillment by a prospective teacher of the requirements for a teacher's certificate based upon the bachelor's degree. Scholarship loans, together with 4 per cent thereon, *may be cancelled by teaching one full year in North Carolina for each annual scholarship received.* Consideration for a scholarship loan is given to the aptitude, purposefulness, scholarship, character, and financial need of the applicant. For detailed information about the program, write to Prospective Teachers Scholarship Loan Fund, State Department of Public Instruction, Raleigh, North Carolina.

Other Loan Funds are made available by clubs and individuals. These include the A.A.U.W. Loan Fund, the Allie M. St. Clair Loan Fund, the Annas Loan Fund, the Charlotte Kiwanis Club Loan Fund, the Ebersole Fund, the Lions Club Loan Fund, and the Rotary Club Loan Fund.

Application blanks and details on loan funds may be obtained from the Financial Aid Officer, The University of North Carolina at Charlotte, Post Office Box 12665 Charlotte, North Carolina 28205.

SCHOLARSHIPS:

Alcoa Foundation
Alpha Delta Kappa
Alpha Zeta Chapter of Delta Kappa Gamma
Altrusa Club
American Business Women-Charlotte Chapter
American Business Women-Mecklenburg Chapter
American Business Women-Gastonia Chapter
J. Murrey Atkins Scholarship
Brycie Baber Scholarship
Barnhardt Manufacturing Company

Calvary Methodist Church
Cannon Scholarship
Carolina Yarn Association
Central Lions Club
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women
Charlotte Civitan Club
Charlotte-Mecklenburg Unit-NCEA
Charlotte Panhellenic Congress
Charlotte Sales and Marketing Executives
Commercial Credit
Bonnie E. Cone Scholarship
Corporate Insurers
W. Cleveland Davis Scholarship
Delta Kappa Gamma
Eastern Airlines Management Council
Ernst & Ernst Achievement Scholarship
Harry P. Harding Scholarship
Drs. Aubrey and Cecil Hawes
Housewares Club of the Carolinas
Jefferson Standard Scholarship
Junior Achievement
Kerley Scholarship for Nursing
McEwen Scholarship
Pierre Macy Scholarship
March of Dimes
Mr. & Mrs. James T. Meador
Mecklenburg Junior Chamber of Commerce
Mecklenburg County Medical Society
Mumaw Engineering
National Association of Accountants-Herbert Conner Scholarship
Nursing Honors Scholarship
Mr. & Mrs. Jesse W. Page
Pepsi Cola
Pilot Club
Cecil Prince Scholarship
Puette Scholarship
Mr. & Mrs. Page Shelton
Frank Sherrill Scholarship
Schoenith Scholarship-Loan

Sheldon P. Smith Scholarship
Charles H. and Clara Stone Scholarship
A. K. Sutton Scholarship
United Select Foods
Walker Martin
Cliff Westbrook Scholarship
Earl Whitton Scholarship
Mr. & Mrs. J. L. Winningham
Women's Allied Auxiliary of N. C. Motor Carriers
Zonta Club

EMPLOYMENT

The Office of Student Affairs assists the student in locating work during his undergraduate years as part of the program of financial assistance. The University participates in the Federal Work-Study program and often couples part-time work with scholarship or loan assistance to meet the financial need of a student.

HONORS

AWARDS

The Bonnie E. Cone Award is given annually to a freshman student who has demonstrated fine college spirit and made a significant contribution to college life.

The Bill Mitchell Award. Two members of the graduating class who have shown outstanding qualities of scholarship and leadership and maintained an attitude of unselfish interest in the welfare of their fellow students and of the University as a whole are selected for the award.

The Chemistry Award is presented annually to the student with the highest scholastic average in freshman chemistry.

The Mathematics Award is given annually to the student whose achievement in mathematics during his freshman year is judged most outstanding.

The Physics Award is given annually to the outstanding student in introductory physics.

The James W. Grey Award is given annually to a student who has maintained an above average scholastic average while participating in programs of organized sports and physical fitness at the University.

The Charlotte Panhellenic Award. In considering young women for the Panhellenic Award, acceptance in the University Community is the chief factor. The candidate should be an exemplary student: in conduct, poised and gracious; in service, able and cooperative; in scholarship, superior and enthusiastic.

The Education Award is presented annually to two members of the graduating class who have shown qualities of leadership and scholarship and who are planning to enter the teaching profession.

The Francis M. Fitzgerald Awards are presented annually by the Mecklenburg Chapter of The National Conference of Christians and Jews to the male and female student in the field of education who have, in their college life, most exemplified the ideals for which The National Conference stands—the brotherhood of man under the fatherhood of God.

The Wall Street Journal Award is given annually to a graduating senior in a department of the University in which the Wall Street Journal was used during the year.

The Nursing Honors Scholarship, consisting of the amount of the tuition charge for legal residents of North Carolina for one semester of the junior year at the University of North Carolina at Charlotte, is awarded to the student who has the highest cumulative quality point ratio at the end of the sophomore year of all those students enrolled in the program leading to a B.S. degree with a major in Nursing.

The Student Government Award is to be awarded annually by the Student Legislature to the student at the University of North Carolina at Charlotte who has most exemplified the ideal of unselfish dedication to student government and the welfare of his fellow students during the current year.

DEAN'S LIST

The Dean's List is a record of all students whose academic record merits special recognition from the University. In

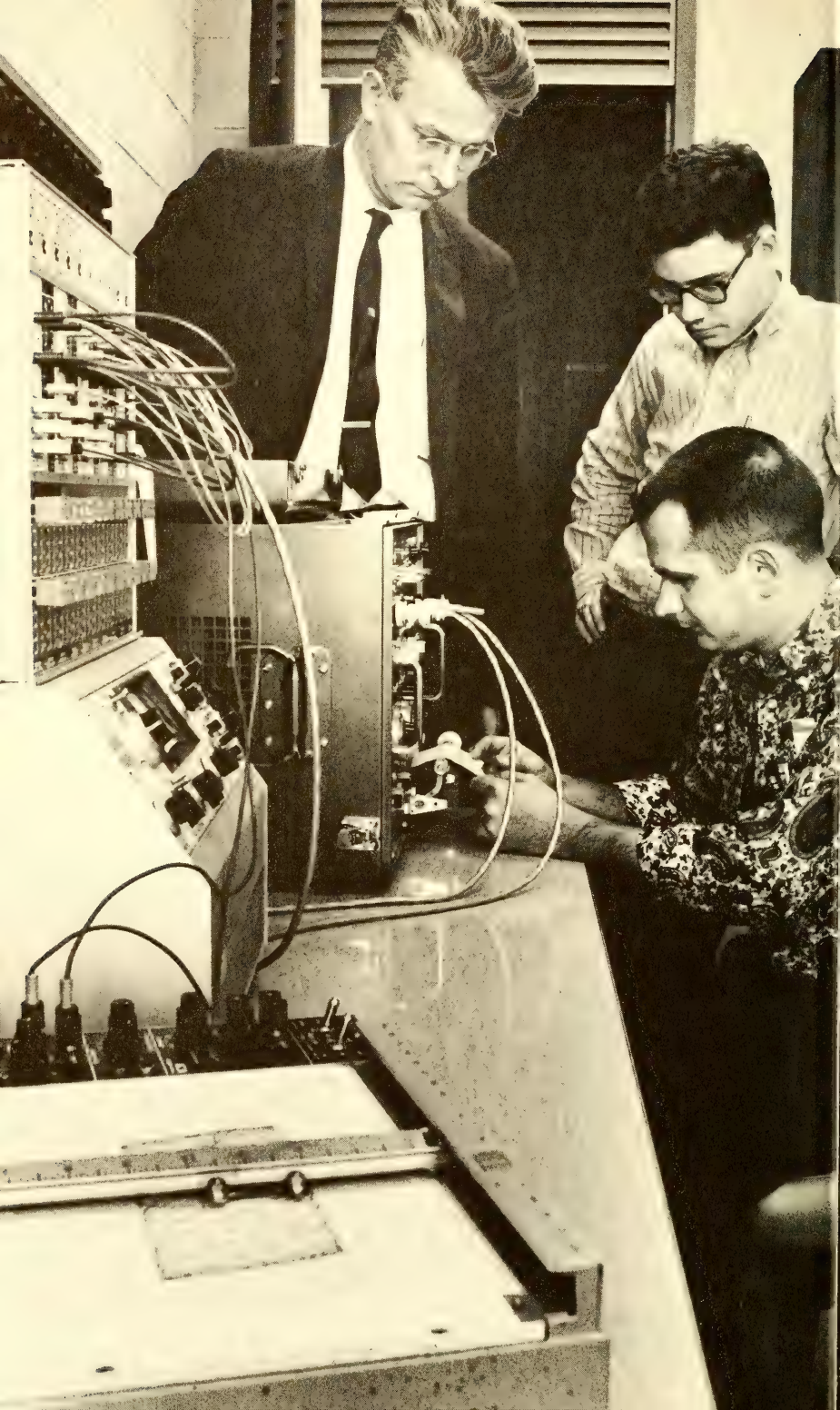
order to qualify for the Dean's List, a student must take a full program of five subjects (at least fifteen semester hours of work) and maintain a quality point average of at least 3.00 (a grade of B) with no grade lower than a C.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages are honored by being named Commencement Marshals. The marshal who has the best academic record is designated Chief Marshal.

WHO'S WHO

Students are selected for *Who's Who Among Students in American Universities and Colleges* on the basis of scholarship, citizenship, participation and leadership academically and extracurricularly, and, in general, their potential future usefulness to society.



V. DEGREES

DEGREES OFFERED

Bachelor of Arts (B.A.):
- Biology
- Business Administration
- Chemistry
- Economics
- English
- French
- History
- Mathematics
- Political Science
- Psychology
- Sociology
- Spanish

Bachelor of Science (B.S.):
- Accounting
- Biology
- Chemistry
- Mathematics
- Nursing

Bachelor of Science in Engineering

DEGREES WITH DISTINCTION

Each of the preceding degrees is awarded *with high honor,* when the graduate's quality point ratio is 3.80 or more, or *with honor,* when his quality point average is 3.40 or more, but less than 3.80.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

The degree of Bachelor of Arts is offered with majors in the following fields: Biology, Business Administration, Chemistry, Economics, English, French, History, Mathematics, Political Science, Psychology, Sociology, and Spanish.

COURSE REQUIREMENTS

	Semester Hours
English 101, 102, 201, and 202, 203, or 204. Students making a sufficiently high placement	12

test score in English are exempted from English 101.

History 101 and 102.	6
Mathematics, 6 hours, including either 102 or 141.	6
Natural Science, 16 hours, consisting of four laboratory courses of at least 4 hours each. At least one of these must be taken from each of the following groups: Group A: Chemistry, Physics, Geology, Geography 101. Group B: Biology, Psychology 201. Psychology 201 may be offered as a Natural Science or as a Social Science, but not as both.	16
Social Science, 9 hours, taken from: Economics, History, Political Science, Anthropology, Sociology, Psychology, Philosophy, or Religion. A course in Philosophy or Religion may be offered as a Social Science or as a Humanity, but not as both.	9
Humanities, 6 hours, taken from: Art Appreciation, Art History; Literature; Music Appreciation; Philosophy, Religion; A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.	6
Courses in the major field: see the requirements of the major department.	—
Related work: 15 to 21 hours of work related to the major field, as required by the major department.	15-21
Foreign Language: completion of one semester of a foreign language at the 300 level. See Foreign Language Requirement, page 63 ff.	—

SEMESTER HOUR REQUIREMENTS

Total required: a minimum of 126 hours, but see the requirements of the major program.

Maximum number of hours permitted from a single department to count toward the degree: 36 semester hours.

Related work: 15 to 21 hours, as required by the major department, but in no more than two departments other than the major.

Hours in the major department: see the requirements of that department.

QUALITY POINT REQUIREMENTS

In all courses attempted at the University, a minimum overall quality point average of 2.00 is required.

In all courses in the major department, a minimum overall quality point average of 2.00 is required.

COURSE LEVEL REQUIREMENT

Junior and Senior students must have the consent of their major department to enroll in any course below the 300 level, not required in their degree program.

RESIDENCE REQUIREMENTS

For residence requirements, see page 44.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered with majors in the following fields of study: Accounting, Biology, Chemistry, Mathematics, and Nursing.

GENERAL DEGREE REQUIREMENTS:

All general degree requirements are the same for the degree of Bachelor of Science as for the degree of Bachelor of Arts, with the following exceptions: The maximum number of hours permitted from a single department to count toward the degree of Bachelor of Science is 46 semester hours; related work of 15-25 hours is required.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

The following suggested program for the freshman and sophomore years is designed to assist new students in making out their initial programs. It is planned to initiate the satisfaction of basic degree requirements, and will apply to most curricula. However, the student must consult the major department for modifications of this program

designed to coordinate with the entire major degree program.

SUGGESTED CURRICULUM FOR THE FIRST TWO YEARS, LEADING TO THE DEGREE OF BACHELOR OF ARTS, OR BACHELOR OF SCIENCE

Course	Number	Semester Hours	Total
	FRESHMAN		
	First Semester		
English	101	3	
History	101	3	
Mathematics	101	3	
Natural Science		4	
Foreign Language	201*	3	
			16
	Second Semester		
English	102	3	
History	102	3	
Mathematics	102	3	
Natural Science		4	
Foreign Language	202*	3	
			16
			32
	SOPHOMORE		
	First Semester		
English	201	3	
Social Science (or Humanities)		3	
Natural Science		4	
Foreign Language	300 level	3	
Elective		3	
			16
	Second Semester		
English	202 (or 203 or 204)	3	
Social Science (or Humanities)		6	
Natural Science		4	
Elective		3	
			16
			32

* See foreign language requirements, below.

FOREIGN LANGUAGE REQUIREMENTS:

I. On entering the University of North Carolina at Charlotte, students who present for admission one unit of

a high school language, or less than one unit, must complete courses 101, 102, 201, 202, and one semester at the 300 level in a foreign language. No credit will be given for courses 101 and 102, when used to make up an entrance deficiency.

II. Students who present one or more units of a high school language for admission should take the language placement test during the orientation period, when they intend to continue the same language at the University. On the basis of these test scores, students will be assigned to the foreign language course that corresponds to their competence as measured by these standardized tests.

A. Student continuing the same language as that presented for admission:
   1. If he places by test in 201, he will be required to complete courses 201, 202, and one semester at the 300 level.
   2. If he places in 202, he will be required to take only 202 and one semester at the 300 level.
   3. If he places below the 200 level, he should take without degree credit 102, or 101 and 102, as the case may be, in order to be adequately prepared to continue with courses 201, 202, and a 300 course.

B. A student changing to a language other than that presented for admission, or presenting for admission a foreign language not taught at the University of North Carolina at Charlotte, will be required to complete courses 101, 102, 201, 202, and one semester at the 300 level in a new language, with the following exceptions:
   1. A student presenting two or more years of high school language for entrance credit, who enters a curriculum that requires a language different from the one he presents, may complete his requirement by completing course 202 in the required language.
   2. A student presenting for admission two years of high school Latin or Greek, or any other foreign language not taught at the University,

may satisfy the language requirement by completing course 202 in a modern foreign language.

III. *Transfer Student.*

A. A student transferring to The University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he has completed satisfactorily two years of high school foreign language.

B. Students transferring from other colleges will take language placement tests in the language they intend to continue at the University, and they will be advised to register for the course for which they are best fitted according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Majors in: Electrical Engineering and Mechanical Engineering.

COURSE REQUIREMENTS: (See the curricula and course descriptions on pages 95-106.)

Common requirements for majors in Electrical Engineering or Mechanical Engineering

English 101, 102, and 201 or 205	9
History 101 and 102	6
Mathematics 141, 142, 241, 242, 371, and 372	22
Chemistry 101 and 102	8
Economics 201	3
Physics 201, 202, and 311	11
Engineering 100 and 102	3
Engineering Mechanics 211	3
Mechanical Engineering 311	3
Total common requirements, semester hours:	68

Further required and elective courses for Electrical Engineering:

Electrical Engineering 211, 212, 252, 311, 312, 321, 332, 351, 352, 421, 431, 441, 442, and 452	35
Electrical Engineering electives, three courses	9
Engineering Mechanics 216	3
Mechanical Engineering 312	3
Humanities and Social Science electives, three courses	9
Technical or Humanities electives, three courses	9
Total further requirements for electrical engineering, semester hrs.	68

Further required and elective courses for Mechanical Engineering:

Mechanical Engineering 261, 312, 321, 351, 352, 411, 418, 421, 422, 451, and 452	22
Mechanical Engineering electives, three courses	10
Engineering Mechanics 214, 312	6
Engineering 113	1
Electrical Engineering 391 and 392	8
Humanities and Social Science electives, 3 courses	9
Technical or Humanities electives, three courses	9
Total further requirements for Mechanical Engineering, semester hrs.	68

SEMESTER HOUR REQUIREMENTS

Total required in Electrical Engineering or in Mechanical Engineering: 136 semester hours.

QUALITY POINT REQUIREMENTS

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

All courses in engineering: a minimum overall quality-point average of 2.00 is required.

The requirements for continued enrollment are as shown on pages 41-42.

COURSE LEVEL REQUIREMENTS

Junior and Senior students must have the consent of the Engineering Department to enroll in any 100 or 200 courses not required in their degree program. The Engineering Electives, the Humanities and Social Science Electives, and the Technical or Humanities Electives will ordinarily consist of sequences of related courses and are

subject to the prior approval of the Engineering Department. See the footnotes to the engineering curricula, pages 97 and 102.

RESIDENCE REQUIREMENTS

For residence requirements, see page 44.

SECOND BACCALAUREATE DEGREE

A student earning his first baccalaureate degree at the University of North Carolina at Charlotte may be awarded a second baccalaureate degree either simultaneously with or subsequent to the first provided that

1) An application for the second degree is filed by the date specified in the University calendar and is approved by the Vice Chancellor for Academic Affairs and the Department Chairman of the major department for the second degree.
2) The second degree is in a different major from the first.
3) All requirements for the second degree are met.
4) The total semester-hours earned are at least 24 semester-hours beyond those applied to the first degree.

A transfer student holding a baccalaureate degree from another institution may be awarded a second baccalaureate degree at the University of North Carolina at Charlotte by meeting the residence requirements in addition to the four requirements above.

PRE-PROFESSIONAL AND PROFESSIONAL CURRICULA

Students who plan to enter a professional school are advised to plan their program so that general requirements for the Bachelor of Arts or Bachelor of Science degree are met in addition to the requirements for the professional program being considered. Candidates for the Bachelor of Arts or Bachelor of Science degree will encounter no difficulty in completing the work for entrance into the profes-

sional program while satisfying the requirements for the degree. Pre-professional students should recognize that a broad cultural education is important, and that as many courses as possible should be taken in the humanities, arts, social sciences, and natural sciences. The prospective professional student should inform his advisor of his plans, to ensure that all prescribed work will be completed. The student should familiarize himself with the entrance requirements of the particular school that he hopes to attend.

PRE-LAW CURRICULUM

See History and Political Science Department, page 143.

PRE-MEDICAL AND PRE-DENTAL DEGREE PROGRAMS

See Biology Department, degrees and course offerings.
See Chemistry Department, page 76.

PRE-SOCIAL WORK CURRICULUM

See Psychology Department, page 146.
See Sociology Department, page 149.

THE EVENING PROGRAM

The University administers the evening program as an integral part of its total program. Any course in the catalogue may be taught in the evening if there is sufficient demand for it. Each course offered in the evening is taught at the same academic level as in the day program and requires the same level of achievement.

For information concerning the evening program, write or call:

Director of Evening Program
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970

THE SUMMER SESSION

The Summer Session is designed to present courses of the same quality as those offered in the regular academic year. These courses—selected according to the needs of

regular students, students transferring from other institutions, and students of the community—are presented in two terms consisting of six weeks each.

For detailed information on the Summer Session, write:

Director of Summer Session
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970

VI. COURSES OF STUDY

COURSES OF STUDY

Following are all courses offered by the University of North Carolina at Charlotte, listed under the department or academic area concerned. Faculty approval is pending for some of the courses listed, and final academic plans should be checked carefully with a faculty advisor. Under each department and academic area is given the following information:

The name of the department or area; the chairman and other faculty, with their rank; a statement, where required, of the general policies and programs of the department; a suggested degree program, where this is applicable to the area concerned; a list of the courses offered.

Courses are listed with a course number, the title of the course, the semester hours credit given in parentheses, prerequisites, if any, and a description of the subject matter of the course, with whatever requirements of class or laboratory hours are applicable. If no class hours are given, the number of class sessions per week is the same as the number of semester hours credit for the course.

Courses are in general numbered 100 to 199 for freshmen, 200 to 299 for sophomores, 300 to 399 for juniors, and 400 to 499 for seniors. However, prerequisites for each course must be consulted to determine the student's eligibility to take that course.

Where a detailed degree program is not suggested by a particular department, the student must arrange his program in consultation with the department. However, every student should consult the department of his intended major to be certain that he is following an approved program which will enable him to progress logically and successfully to the conclusion of his degree program, and to fulfill the requirements both of the University and of the major department or professional sequence.

Students intending to teach should consult both the major department and the Department of Education.

BIOLOGY

Professors Hildreth, Chairman and Distinguished Professor, Hechenbleikner; Assistant Professors Hogan, Matthews, Menhinick; Instructors Burnside, Diamond

A major in Biology leading to the B.A. degree consists of 32 semester hours. A major in Biology leading to the B.S. degree consists of 40 semester hours. All Biology majors are required to complete Biology 101, 201, 202, 411, Chemistry 101 and 102. Related work will consist of 16 semester hours as approved by the Department.

Suggested Curriculum

A Major in Biology, leading to a Bachelor of Arts or Bachelor of Science Degree*

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Mathematics 101	3	Mathematics 102	3
History 101	3	History 102	3
	16		16

SOPHOMORE YEAR

Biology 101	4	Biology 200 level	4
English 201	3	English 202, 203 or 204	3
Foreign Language 300 Level	3	Elective (Hum.)	3
Elective (S.S.)	3	Elective (S.S.)	3
Chemistry 203	4	Chemistry 204	4
	17		17

JUNIOR YEAR

Elective (Biol.)	4	Elective (Biol.)	12
Elective (Hum.)	3	Elective	3
Elective (S.S.)	3		
Electives	6		15
	16		

SENIOR YEAR

Elective (Biol.)	8	Electives	15
Biology Seminar	1		
Elective	6		15
	15	Total Hours: 127	

* The B.A. and B.S. degrees differ in the number of hours required in Biology. A student wishing to receive a B.S. Degree must take two additional courses in Biology (8 hours) in place of the free electives listed above. Related work consists of 16 semester hours as approved by the department. It is recommended that a biology major include 2 courses in Physics, 2 courses in Organic Chemistry, at least 1 course in Geography or Geology, and Mathematics 221 in his program. Students who may attend graduate school should choose French, German or Russian as a Foreign Language.

Pre-Medical and Pre-Dental students should consider the suggested curriculum for Biology majors. A major in Biology will satisfy most of the requirements for entrance to Medical and Dental school; however, listed below are the composite requirements for most Medical and Dental schools in North Carolina, Georgia, South Carolina, Tennessee, and Virginia. The student is advised to consult the catalogue of specific institutions for particular requirements.

Biology	8 hours
Inorganic Chemistry	8 hours
Organic Chemistry	8 hours
Quantitative Analysis	4 hours
(required by half the schools surveyed)	
Physics	8 hours
English	12 hours
Foreign Language	9-12 hours
(N.C. and S.C. only)	

101. INTRODUCTORY BIOLOGY. (4) The introductory course is designed to acquaint the student with the fundamental principles of life. The molecular and cellular basis of biology is stressed, with emphasis on the following: matter and energy, protoplasm, cell structure, cell physiology, cell reproduction, genetics and concepts of evolution. Three lecture hours and one laboratory period of three hours a week.

201. PLANT MORPHOLOGY. (4) Prerequisite: Biology 101. Selected life histories of major plant groups, stressing relationships, reproduction, and classification of biologically and economically important plant groups. Three lecture hours and one laboratory period of three hours a week.

202. VERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of the vertebrates stressing classification, morphology, anatomy, distribution, life histories, and economic importance. Three lecture hours and one laboratory period of three hours a week.

203. MICROBIOLOGY. (4) Prerequisite: Biology 101. A study of the microscopic plants and animals stressing fundamentals of morphology, physiology, culture methods and methods of control. Three lecture hours and one laboratory period of three hours a week.

204. HUMAN ANATOMY AND PHYSIOLOGY. (4) Prerequisite: Biology 101. A course stressing the basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours and one laboratory period of three hours a week.

205. GENERAL PHYSIOLOGY. (4) Prerequisite: Biology 202. A study of the roles of the organ systems of animals in the physiology of growth, metabolism, movement, reproduction and integration. Three lecture hours and one laboratory period of three hours a week.

206. INVERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of representative invertebrate organisms. Phylogeny, morphology, physiology, ecology, economic and biological significance of invertebrates are considered. Three lecture hours and one laboratory period of three hours a week.

302. PRINCIPLES OF GENETICS. (4) Prerequisite: Biology 201 or 202. A course designed to acquaint the student with basic concepts of heredity. Diverse organisms are considered in order to gain an understanding of the principles of classical and molecular genetics. Three lecture hours and one laboratory period of three hours a week.

303. COMPARATIVE VERTEBRATE ANATOMY. (4) Prerequisite: Biology 202. Comparative studies of phylogeny and functional anatomy of vertebrates are emphasized. Three lecture hours and one laboratory period of three hours a week.

304. PLANT SYSTEMATICS. (4) Prerequisite: Biology 201. A study of the classification, phylogenetic relationships, and structure of the seed plants. Special emphasis is placed upon their biological relationships by means of field trips and by the collection and identification of specimens collected in the local environment. Two lecture hours and two laboratory periods of two hours each a week.

305. ECOLOGY. (4) Prerequisite: Biology 201 or 202. The fundamental principles of the relationships of plants and animals to each other and to the environment are discussed and demonstrated by trips in the local area. Two lecture hours and two laboratory periods of two hours each a week.

306. CYTOLOGY. (4) Prerequisite: Biology 201 or 202. A study of the organization of cells stressing the morphological and chemical make-up of cellular constituents and their interaction. Two lecture hours and two laboratory periods of two hours each a week.

352. VERTEBRATE PALEONTOLOGY. (4) Prerequisite: Geology 202 or Biology 101. (This course is the same as Geology 352) Evolution of Vertebrate animals from the first fishes to man. Three lectures and one laboratory period of two hours a week.

401. HISTOLOGY. (4) Prerequisite: Biology 202. A microscopic study of vertebrate tissues and organs. Techniques of preparing

tissues for study are also included in this course. Two lecture hours and two laboratory periods of two hours each a week.

402. EMBRYOLOGY. (4) Prerequisite: Biology 202. Studies in the gametogenesis, fertilization, early embryology and organogenesis of vertebrates. Two lecture hours and two laboratory hours each week.

403. RADIOISOTOPE TECHNIQUES. (3) Open to seniors majoring in biology, chemistry or physics, or with consent of the department. A study of the use of radioisotopes in science and in the classroom: properties of atomic particles, instrumentation, safety regulations, and radioisotope labeling. One lecture and four laboratory hours a week.

410. INVESTIGATIONS IN BIOLOGY. (One to four hours) A course designed to allow the Senior Biology major to initiate a research problem in his field of interest. All participants must have an academic standing of 3.5 in the major field or permission of the department.

411. SEMINAR. (1) A course required of all Biology majors, to be taken during the fall semester of the senior year. Pertinent topics in the field of Biology, and reports on original research are discussed. Students are required to act as the discussion leaders.

CHEMISTRY

Professors Burson, Chairman and Charles H. Stone Professor of Chemistry, Norman; Associate Professor Kuppers; Assistant Professors Crosthwaite, DuBois, Gibson.

A major in Chemistry leading to the B.A. degree consists of 28 semester hours of chemistry among which must be included Chemistry 101, 102, 203, 204, and 303. Related work must include Mathematics 141, 142 and Physics 201, 202. German is the recommended foreign language for the B.A. degree.

A major in chemistry leading to the B.S. degree consists of 44 semester hours of chemistry among which must be included Chemistry 101, 102, 203, 204, 301, 302, 304, 401, 491 and 492. Twenty hours of related work in mathematics (Mathematics 141 and above) and physics must be completed. At least two years of German or two years of Russian are required for the B.S. degree.

Students planning to start a career as a chemist with the baccalaureate degree and those who intend to prepare for graduate study in chemistry should pursue the B.S. degree.

The B.A. curriculum can be tailored to fit individual needs of those preparing for medical and dental schools, those considering graduate work in sciences closely related to chemistry, and those desiring a liberal education with concentration in chemistry and related natural sciences.

Students who complete a major in chemistry automatically meet the chemistry subject matter requirements, on the secondary level, for teacher certification in North Carolina. Students seeking teacher certification should consult a co-advisor in the Department of Education for detailed planning of their professional education.

The following are recommended course selections for the two degrees.

B.A. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 104**	3
History 101	3	History 102	3
German (Russian) 101	3	German (Russian) 102	3
	16 hrs.		16 hrs.
3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
English 201	3	English 202	3
Math 141	4	Math 142	4
German (Russian) 201	3	German (Russian) 202	3
Nat. Sci. B.	4	Social Science	3
	18 hrs.		17 hrs.
5th Semester		*6th Semester*	
Chemistry 303	4	Chemistry	4
Physics 201	4	Physics 202	4
Mathematics 241	4	Humanities	3
German (Russian)	3	Social Science	3
		Elective	3
	15 hrs.		17 hrs.
7th Semester		*8th Semester*	
Chemistry	4	Social Science	3
Humanities	3	Electives	13
Electives	9		
	16 hrs.		16 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203.

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

B.S. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 141	4
Math 104**	3	German 102	3
German 101	3	History 101	3
	16 hrs.		17 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
Math 142	4	Math 241	4
Physics 201	4	Physics 202	4
German 201	3	German 202	2
English 201	3	English	3
	18 hrs.		18 hrs.
5th Semester		*6th Semester*	
Chemistry 301	4	Chemistry 302	4
Chemistry 303	4	Chemistry 304	4
Math 242	4	History	3
Soc. Sci.	3	Soc. Sci.	3
Elective	3	Elective	3
	18 hrs.		17 hrs.
7th Semester		*8th Semester*	
Chemistry 401	4	Chemistry 402	4
Chemistry 403	2	Chemistry 403	2
Chemistry 491	1	Chemistry 492	1
Nat. Sci. B.	4	Social Sci.	3
Math or Physics	3 (4)	Math or Physics	3 (4)
Humanities	3	Humanities	3
	17(18) hrs.		16(17) hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203.

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

101. GENERAL CHEMISTRY. (4) Prerequisite or corequisite: Mathematics 101, or Mathematics 103. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

102. GENERAL CHEMISTRY. (4) Prerequisite: Chemistry 101. Continuation of Chemistry 101 including qualitative analysis. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

203. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 102. Basic theories, principles, and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Three lecture hours and one three hour laboratory period per week.

204. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 203. Continuation of Chemistry 203. Three lecture hours and one three hour laboratory period per week.

210. INORGANIC CHEMISTRY. (3) Prerequisites: Chemistry 101 and 102. Descriptive inorganic chemistry including acid-base and non aqueous solvent concepts. Three lecture hours a week.

301. PHYSICAL CHEMISTRY. (4) Prerequisites: Chemistry 102, Mathematics 241, Physics 202. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours and one laboratory period of three hours per week. (Credit for both 301 and 311 will not be given.)

302. PHYSICAL CHEMISTRY. (4) Prerequisite: Chemistry 301. Continuation of Chemistry 301. Three lecture hours and one laboratory period of three hours a week. (Credit for both 302 and 312 will not be given.)

303. QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 102 and satisfactory work in college mathematics and physics. Introductory course in quantitative analytical chemistry, including both volumetric and gravimetric procedures. Two lecture hours and two laboratory periods of three hours each a week.

304. ADVANCED QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 301, Chemistry 303. Continuation of Chemistry 303, involving more difficult methods including instrumental methods such as spectrophotometric, electroanalytical, and chromatographic techniques. Two lecture hours and two laboratory periods of three hours each a week.

311. PHYSICAL CHEMISTRY. Prerequisite: Consent of the department. Same course as Chemistry 301 but taught without the laboratory. Three lecture hours a week. (Credit for both 301 and 311 will not be given.)

312. PHYSICAL CHEMISTRY. (3) Prerequisite: Chemistry 301 or 311. Same course as Chemistry 302 but taught without the laboratory. Three lecture hours a week. (Credit for both 302 and 312 will not be given.)

401. ADVANCED INORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 302 and 304. Theoretical inorganic chemistry including the application of physical-chemical principles to the study of inorganic systems. Laboratory work involving inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week.

402. ADVANCED ORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 204, 303. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis including instrumental methods. Two lecture hours and two laboratory periods of three hours each a week.

403. INDEPENDENT STUDY AND RESEARCH. (1 to 4) Prerequisites: Chemistry 204, 302, 304. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry, or biochemistry; introduction to research. Hours in consultation, library and laboratory to be determined.

411. ADVANCED PHYSICAL CHEMISTRY. (3) Prerequisites: Chemistry 301 or 311, Physics 311, Mathematics 372 (the latter may be taken concurrently). Topics selected from quantum chemistry and/or statistical thermodynamics. Three lecture hours per week.

491. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Discussion of recent developments in chemistry. Written and oral reports will be submitted.

492. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Continuation of Chemistry 491.

ECONOMICS AND BUSINESS ADMINISTRATION

Professor Wubben, Acting Chairman; Assistant Professors DeFelice, Higgins; Instructors Abdel-Khalik, Boyles, Dunn, Rogers, Turner, Williamson

Accounting

A major in Accounting leading to the B.S. degree consists of the following 39 semester hours of courses: Business Administration 201, 202, 311, 316, 400, 380, 371, 373, 471, 473, 475, 477, and 478.

The following fifteen hours of related work are required: Mathematics 221, 222, Economics 305, Economics 324, and three additional hours either in mathematics or economics.

Six semester hours of humanities and nine semester hours of social science are required. The course in Principles of Economics (Economics 201, 202), which is prerequisite for many advanced courses in this program, will be specified as satisfying six hours of the social science requirement.

A Representative Program for a Course of Study Leading to the B.S. Degree in Accounting

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics 102	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Mathematics 221**	3	Mathematics 222**	3
Bus. Administration 201*	3	Business Administration 202*	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 311*	3	Economics 324**	3
Business Admin. 373*	3	Business Admin. 371*	3
Foreign Language (or elect.)	3	Business Admin. 471*	3
Science	4	Science	4
	16	Humanities	3
			19

SENIOR YEAR

Economics 305**	3	Business Admin. 400*	3
Business Admin. 473*	3	Business Admin. 475*	3
Business Admin. 477*	3	Business Admin. 478*	3
Social Science	3	Free Elective	3
Humanities	3	Related work in Econ. or Math**	3
	15		15

TOTAL HOURS: 127

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement.).
**Indicates related work.

Business Administration

A major in Business Administration leading to the B.A. degree consists of the following courses: Business Administration 201, 202, 371, 316, 380, 311, 400, and 444.

The following related work is required: Mathematics 221, 222, Economics 305, 324, 315, and 480.

The course in Principles of Economics (Economics 201, 202) will satisfy six hours of the requirement of nine semester hours of social science. This course is prerequisite to many of the courses listed above.

A Representative Program for a Course of Study Leading to the B.A. Degree in Business Administration

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Lang. (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Business Admin. 380*	3	Business Admin. 316*	3
Business Admin. 371*	3	Business Admin. 311*	3
Economics 324*	3	Science	4
Foreign Lang. (or elect.)	3	Free elective	3
Science	4	Free elective	3
	16		16

SENIOR YEAR

Business Admin. 400*	3	Business Admin. 444*	3
Economics 315*	3	Economics 480*	3
Economics 305*	3	Free elective	2
Free elective	3	Free elective	3
Humanities	3	Social Science	3
	15	Humanities	3
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement), and Mathematics 221, 222 (Probability & Statistics).

Economics

A major in Economics leading to the B.A. degree consists of 24 hours of courses offered by the Department of Economics numbered 300 and above. These 24 hours must include Economics 315, 322, 323, 471, 305, and three of the following: Economics 416, 324, 480, 375, and 477.

The following 21 hours of related work are required: Mathematics 221, 222; Business Administration 201, 202, and three of the following four courses: Business Administration 311, 316, 400, 444.

The course in Principles of Economics (Economics 201, 202), which is prerequisite for many of the courses listed above, will satisfy the requirement of six of the nine semester hours of social science.

A Representative Program for a Course of Study Leading to the B.A. Degree in Economics

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 101	3
Foreign Language	3	Foreign Language	3
Mathematics 101	3	Mathematics	3
Science	4	Science	4
	16		16

SOPHOMORE YEAR

English 201	3	English 202, 203, or 204	3
Foreign Language	3	Foreign Language (or elect.)	3
Economics 201	3	Economics 202	3
Business Admin. 201*	3	Business Admin. 202*	3
Mathematics 221	3	Mathematics 222	3
	15		15

JUNIOR YEAR

Economics 322*	3	Economics 323*	3
Economics 315*	3	Economics elective*	3
Related work in Bus. Adm.*	3	Related work in Bus. Adm.*	3
Science	4	Science	4
Foreign Lang. (or elect.)	3	Social Science	3
	16		16

SENIOR YEAR

Economics 471*	3	Economics elective*	3
Economics 305*	3	Related work in Bus. Adm.*	3
Economics elective*	3	Free elective	3
Free elective	3	Free elective	3
Humanities	3	Free elective	2
	15	Humanities	3
			17

TOTAL HOURS: 126

*Indicates a course specified for this Major. Excluded from the list of courses marked (*) are Economics 201, 202 (which will be designated as satisfying 6 of the 9 hours of the Social Science requirement) and Mathematics 221, 222 (Probability & Statistics).

BUSINESS ADMINISTRATION

201. PRINCIPLES OF ACCOUNTING. (3) Prerequisite or corequisite: Economics 201. A study of fundamental accounting principles, with emphasis on managerial uses of accounting data, and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

202. PRINCIPLES OF ACCOUNTING. (3) Prerequisite: Business Administration 201. A study of basic accounting theory; corporate financing and reporting; financial planning; and an introduction to cost accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

311. MARKETING. (3) Prerequisite or corequisite: Economics 202. Prerequisite or corequisite: Business Administration 201. A consideration of the problems involved in the physical distribution of goods from the producer to the final consumer. Attention is given to the various marketing channels and institutions. In general, the course will be taught from the standpoint of the producer of the product to be marketed.

316. FINANCIAL MANAGEMENT. (3) Prerequisites: Economics 324 and Business Administration 201. Principles and problems of business financing. Particular emphasis on financial planning and control.

371. COST ACCOUNTING. (3) Prerequisite: Business Administration 202. A study of cost determination and control. Includes procedures for job order, process and standard systems, and management uses of cost data. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

373. INTERMEDIATE ACCOUNTING. (3) Prerequisite: Business Administration 202. A review of basic accounting principles; accounting for resources and liabilities; special problems peculiar to corporations; and analysis and interpretation of accounting reports. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

380. BUSINESS LAW. (3) Prerequisite or corequisite: Economics 202; prerequisite: Business Administration 201 or Business Administration T102. A study of the legal environment in which a business operates, topics covered include contracts, sales, negotiable instruments, agency, partnerships, and corporations.

400. PRODUCTION MANAGEMENT. (3) Prerequisites: Economics 202 and Business Administration 202. Analysis of the management function of production control, with emphasis at the *micro level.* Ample use of the case study approach will develop an understanding of production planning, control, and decisions.

444. ORGANIZATION THEORY. (3) Prerequisite: Economics 202. An application of traditional and behavioral concepts to business organization and decision making. Primarily a study of the process of decision making in the business organization including the more modern feed back systems of group behavior.

471. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration 373. Special advanced accounting problems and reports including partnership formation and dissolution, installment sales, consignments, branch accounting, consolidated statements, statement of affairs, receiver's accounts, realization and liquidation reports, actuarial science, estates, and trusts. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

473. GOVERNMENTAL ACCOUNTING. (3) Prerequisite: Business Administration 202. Fund accounting procedures for

governmental units and institutions. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

475. AUDITING. (3) Prerequisite: Business Administration 202. Auditing theory and practice with emphasis on public auditing. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

477. INCOME TAXATION FOR INDIVIDUALS. (3) Prerequisite: Business Administration 202. A study of federal and state income tax laws applying to individuals. The preparation of individual income tax returns is stressed in laboratory problems. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

478. ADVANCED INCOME TAXATION. (3) Prerequisite: Business Administration 477. A study of federal and state income tax laws applying to partnerships, corporations, estates and trusts; and estate, gift, and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

479. ADVANCED ACCOUNTING PROBLEMS. (3) Prerequisite: Consent of the department. Intensive study of principles and techniques involved in the solution of advanced accounting problems encountered in public accounting practice. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ECONOMICS

201. PRINCIPLES OF ECONOMICS. (3) The first semester of a one-year introductory course in Economics. Topics considered include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy.

202. PRINCIPLES OF ECONOMICS. (3) Prerequisite: Economics 201. The second semester of a one-year introductory course in economics. Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economics concentration and of agriculture, the theory of income distribution, international economic relationships, and comparative economic systems.

305. INDUSTRIAL RELATIONS. (3) Prerequisite: Economics 202. Systematic analysis of the sociological, economic, and political forces affecting and affected by the work environment.

Special emphasis on market structure, the small group, the legal environment, and union structure.

315. MONEY AND BANKING. (3) Prerequisites: Economics 202 and Business Administration 201. The characteristics and functions of money in the modern economy. The operation of our banking system; monetary theory and policy.

322. PRICE THEORY AND INDUSTRIAL ORGANIZATION. (3) Prerequisite: Economics 202. A study of the manner in which prices are determined in various types of markets—competitive, monopolistic, oligopolistic, and monopolistically competitive—and of the characteristics of each. Consideration is given to the economics of the firm, and to the use of economic theory in making business decisions.

323. MACRO-ECONOMIC THEORY. (3) Prerequisite: Economics 322. An analysis of economic aggregates, primarily of income determination. Special emphasis on the development and understanding of current macro-economic models and sector analysis.

324. MANAGERIAL ECONOMICS. (3) Prerequsites: Economics 202 and Business Administration 202. A consideration of economic problems of particular importance to business firms, with a view to using tools of economic analysis in managerial decision making.

375. COMPARATIVE ECONOMIC SYSTEMS. (3) Prerequisite: Economics 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism, and communism.

416. PUBLIC FINANCE. (3) Prerequisite: Economics 315. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

471. INTERNATIONAL ECONOMICS. (3) Prerequisites: Economics 323 and Economics 315. The application of modern developments in price theory, employment theory, and monetary theory to international equilibrium, and world liquidity are also considered.

477. HISTORY OF ECONOMIC THOUGHT. (3) Prerequisite: Economics 323. The development of the great economic ideas of value, distribution, employment, etc., with special emphasis on the foundations of classic economic thought.

480. GOVERNMENT AND BUSINESS. (3) Prerequisite: Economics 202. A historical development of government regulation of business, utilizing the case study approach to develop an understanding of current philosophies and problems in this area.

EDUCATION

Assistant Professor Hackney, Acting Chairman; Assistant Professors Reavis, Whittacre

The Department of Education, within the framework of the liberal arts and science curricula, offers programs in elementary and secondary education which fulfill the requirements for North Carolina Class "A" teacher certification. Teacher education at the University of North Carolina at Charlotte is conceived as a cooperative enterprise of the entire faculty. The preparation of teachers is one of the important functions of this University.

The requirements of the program are coordinated with the requirements which must be met in a major field of concentration and the general requirements for the Bachelor's degree. Courses offered in the teacher education program may be taken for undergraduate credit and may also be applied toward a teaching certificate or certificate renewal.

Students who plan to teach outside of North Carolina are strongly urged to check certification requirements with the Department of Education before the end of their sophomore year, so that they can plan their programs appropriately.

Admission to the Education Program

Applications for admission to the Education Program normally should be filed with the Department of Education during the students' first semester of their sophomore year. Applicants must have earned at least a 2.0 grade point average, be interviewed by a member of the Department of Education, be in good health substantiated by a physical examination, and have completed Psychology 201. The Department of Education will notify each applicant of the action taken on his application. Each student accepted in the Education Program will be assigned to an advisor in the Department of Education who will coordinate his program in consultation with the major advisor. The Education advisor will confer with the student concerning long range planning of his program, opportunities in the teaching field, and North Carolina certification requirements. The progress of each student in the Education sequence is reviewed by the advisor each semester.

Students should consult with the Department of Education for further details.

Admission to Student Teaching

Applications for admission to Education 450 or 451 (Student Teaching) should be filed with the Department of Education during the semester preceding student teaching. For admission to Education 450 or 451 candidates must have above average scholastic grades, sound mental and physical health, good speech, the approval of the Department of Education, and the recom-

mendation of the major department. The quality of scholarship in the teaching field or area of each candidate shall be at a level above that minimally required for graduation. The Department of Education will notify each applicant of the action taken on his application.

Prior to admission to student teaching, students must complete all other course requirements for the Bachelor's degree, including the Education sequence, unless circumstances warrant approval by the Department of Education. This approval may be obtained by making a written request to the Chairman of the Department of Education. A general orientation conference on student teaching will be held for all prospective student teachers during the semester preceding their student teaching. Prospective student teachers are expected to attend. The date of the conference will be posted on the Department of Education bulletin board.

Students should consult with the Department of Education for further details.

Block Schedule

The block schedule consists of the following courses:
Elementary—Education 304, 401, 450, and Psychology 301
Secondary—Education 304, 402, 451, and Psychology 302

All of the courses except Education 450, 451 are taught during the first eight weeks of the semester. The second eight weeks of the semester is devoted to student teaching (Education 450 or 451). At present the block schedule is offered only during the spring semester. Students planning to graduate in January may only take one course in the fall semester—Education 450 or 451. Therefore, it is necessary that they have all other block courses completed before the fall semester. Block courses may be taken individually as offered; this is especially advisable for those planning a January graduation.

Special Students in Teacher Education

The status "special student" in teacher education is applied to (1) students who hold a Bachelor's degree and are working toward a teaching certificate or certificate renewal, and (2) visiting students who are taking courses in the teacher education program with the approval of their resident institutions.

Special students must meet the standards set by the University for admission as well as the requirements of the Department of Education, which include above average scholastic ability, sound mental and physical health, and good speech. The student who has obtained a degree at another institution and wishes to be certified by this institution will be required to take at the University of North Carolina at Charlotte a minimum of two courses in his major area, two courses in education, and student teaching. Under special circumstances, these requirements may be waived at the discretion of the department involved.

Students should consult with the Department of Education for further details.

National Teacher Examination

A candidate for an elementary or secondary school teaching certificate in North Carolina must file evidence that the National Teacher Examination has been taken before a certificate may be issued. Both common and teaching area examinations must be taken by the applicant. Students should consult with the Department of Education for further details.

Teacher Placement

The Placement Office in the Division of Student Affairs in cooperation with the Department of Education provides placement services for qualified graduates. All students in the Education program are urged to complete their credentials since it is common practice for school administrators to contact the University for prospective candidates.

Curriculum Materials Center

Located in the J. Murrey Atkins Library, the Curriculum Materials Center contains current textbooks and related curriculum materials representing all subject areas and grade levels taught in the public schools. The Center receives approximately sixty education and related periodicals. A vertical file containing non-catalogued education materials is an integral part of the Center. The library is a government document depository; thus federal government publications pertaining to education are available.

Psychological Testing Laboratory

The Psychology Department maintains a psychological testing laboratory in which students gain experience in the selection, administration, and evaluation of psychological and achievement tests. A library of literature on test instruments for student use is kept current.

Teaching Media

As part of the Education sequence, all students will be given laboratory experiences in teaching media. The latest audiovisual equipment and teaching media will be available for individual student familiarization. Instruction in the use, preparation and evaluation of teaching media as a functional aspect of teaching will be included.

Professional Education Sequence

Elementary

Sophomore or Junior Year	Semester Hours
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3

Junior Year

Education 303 Elementary Education I 3

*Senior Year—Block Schedule**

Education 304 Philosophy of Education 3
Education 401 Elementary Education II 3
Psychology 301 Child Psychology 3
(Spring semester of the senior year—first eight weeks)
Education 450 Student Teaching: Elementary 6
(Spring semester of the senior year—second eight weeks)

Total—24

Secondary

Sophomore or Junior Year

Education 201 Introduction to Education 3
Psychology 202 Educational Psychology 3

*Senior Year—Block Schedule**

Education 304 Philosophy of Education 3
Education 402 Methods of Teaching in Secondary School 3
Psychology 302 Adolescent Psychology 3
(Spring semester of the senior year—first eight weeks)
Education 451 Student Teaching: Secondary 6
(Spring semester of the senior year—second eight weeks)

Total—21

Course Requirements

Elementary

Candidates who plan to teach in elementary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in one of the academic fields (a minimum of 27 semester hours).

(3) A sequence in Elementary Education: Education 201, 303, 304, 401 and 450; Psychology 202 and 301. Twenty-one semester hours of these courses may be counted as related work.

(4) Subject-matter requirements for teacher certification.

* Or as individual courses

Course	Semester Hours
Art 201, 302	6
Education 301	3
English 303	2
Geography 101, 102 or equivalent	7
Health Education 101, 409	4
History 201, 202	6
Mathematics 403	3
Music 207, 307	6
Physical Education 101, 409	4
Political Science 200	3
Speech 101	3

Secondary

Candidates who plan to teach in secondary school will fulfill the following requirements:

(1) All required courses for graduation.

(2) A major in the academic field in which they plan to teach.

(3) A sequence in Secondary Education: Education 201, 304, 402 and 451; Psychology 202 and 302.

(4) Related work approved by the major department.

(5) General requirements:
   a. One course in each of two of the following areas: anthropology, economics, geography, political science, and sociology;
   b. Health Education 101 and Physical Education 101;
   c. Speech 101.

(6) Subject-matter requirements for teacher certification.

English	36
Language (Grammar, composition, rhetoric, history and analysis of the English language, etc.)	12
Literature (English and American Literature)	12
Language and Literature Skills (Reading, interpretation of literature, oral and written exposition, the library, and journalistic writing)	6
Electives from the above areas	6
Mathematics	30
Calculus and Analytic Geometry	9

Algebra 6

Geometry 3

Electives in Mathematics 12

The algebra shall consist of one course in modern abstract algebra and one in linear algebra.

Modern Foreign Language 30

Grammar, Composition, and Phonetics 9

Literature 9

Language Skills 6
(Understanding, speaking, reading, and writing)

Literature, History and Civilization of being studied 6

(The 30-hour requirement in a language assumes that one has had two or more high school units in that language when entering college.)

Science 48

(1) Common Foundation 24
Mathematics 6
Six semester hours each from three of the following: 18
Biology
Chemistry
Physics
Earth Science

(2) A concentration in one area 20
Biology
Chemistry
Physics
Earth Science

(3) Electives 4

Certification in the individual science areas should give depth sufficient to assure reasonable competence as a teacher in the subject of concentration. A program for certification in a particular area (Biology, Chemistry, Physics, or Earth Science) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours)

Social Science 42

(1) History—American and World 21

(2) From three or more of the following 21
(There should be about equal emphasis
on all areas chosen)
Anthropology
Economics
Geography
Political Science
Sociology

A program for certification in individual areas (Anthropology, Economics, Geography, History, Political Science, or Sociology) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours)

EDUCATION

201. INTRODUCTION TO EDUCATION. (3) An introductory course to acquaint students with the teaching profession. Considered are the role of the teacher, the clientele of the school, and the community. Emphasis placed on the historical and sociological orientation of the school in the society.

301. READING AND THE LANGUAGE ARTS. (3) Emphasis on oral and written communication, with special attention to the teaching of reading; appraisal of current programs and methods. This course required for all students planning to teach on the elementary level.

303. ELEMENTARY EDUCATION I: ORGANIZATION AND CURRICULUM. (3) Prerequisites: Education 201, Psychology 202. Major consideration is given to the organization, administration, and curriculum of the elementary school. Emphasis placed on the role of the elementary school teacher in the total education program.

304. PHILOSOPHY OF EDUCATION. (3) Prerequisites: Education 201, Psychology 202. A study of the educational philosophies of the contemporary period and the basic assumptions upon which statements about modern education rest. Extensive readings in text and source materials.

400. TOPICS IN EDUCATION. (2 or 3 semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: employment as a teacher or special permission of the Department of Education. Topics chosen from such fields as remedial reading, special education, guidance, kindergarten, and supervision. This course is designed to serve particular needs, not served by other departmental offerings.

401. ELEMENTARY EDUCATION II: METHODS AND MATERIALS. (3) Prerequisite: Education 303. Major considera-

tion is given to the methods and materials used in teaching at the various grade levels in the elementary school. Emphasis placed on the preparation of lesson plans and units.

402. METHODS OF TEACHING IN SECONDARY SCHOOL. (3) Prerequisites: Education 201, Psychology 202. Aims, methods, and materials of teaching a subject at the secondary level. Also considered are the following: organization of the curriculum, pupil promotional patterns, and classroom management.

402-a English
402-b Foreign Languages
402-b-1 French
402-b-2 Spanish
402-b-3 German
402-c Mathematics
402-d Sciences
402-e Social Sciences

403. PRINCIPLES OF GUIDANCE. (3) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to increase the teacher's knowledge and understanding of the meaning, scope, and principles of guidance in the school setting. A survey course planned to give perspective for future work in guidance.

404. SEMINAR IN EDUCATIONAL RESEARCH. (3) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to assist teachers to conduct and evaluate research studies. Basic research techniques will be examined. Each student will develop a limited research project.

405. SEMINAR FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite: employment as an elementary school teacher or special permission of the Department of Education. Contemporary problems and issues confronting teachers in their actual school experience. The activities of the course will vary with the needs of the students.

407. AUDIOVISUAL MEDIA. (3) Prerequisite: Open to all students with junior standing. The selection, use and evaluation of technological innovations in audiovisual media will be studied. Laboratory experiences in communication media will be emphasized.

450. STUDENT TEACHING: ELEMENTARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in an elementary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

451. STUDENT TEACHING: SECONDARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in a secondary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

ENGINEERING

Professor Barnette, Chairman; Associate Professors Dunkerley[1] Wayne; Assistant Professors Kim and Norem; Instructors Evett, Smith

The engineering department provides an undergraduate professional education in the fields of Electrical Engineering and Mechanical Engineering. The curricula are designed to serve both the potential graduate student who will pursue a career in research or teaching, and the student who will pursue a career as a professional engineer in industry, business, or consulting. Both of these objectives require a substantial curriculum content in the humanities, the physical sciences, the engineering sciences, mathematics, and engineering design.

The engineering curricula prescribed by the faculty of the University of North Carolina at Charlotte give thorough attention to all of these essential areas of content. In order to accomplish this, a total of 139 semester hours of work is required for graduation. The curricula which are shown in detail on the following pages, are outlined as four year programs. Students who enter the University with strong college board scores, and qualify through the entrance examination in mathematics to enroll in Mathematics 141, can expect to schedule their work on an eight semester basis, as shown. Students who are required to enroll in Mathematics 103 and 104, on a basis of the entrance test in mathematics, will not take the courses exactly as listed, unless they begin their program in the summer and complete these preliminary mathematics requirements in advance of their first semester of regular study. Some students may need to take lighter loads than those which are shown, and to attend school one or more summer sessions, or an extra semester, to complete requirements. This is optional with the student, and each one is encouraged to take a load which is optimum for his individual case.

THE ELECTRICAL ENGINEERING CURRICULUM

The curriculum in Electrical Engineering is based upon a core of sequence courses in four branches of electrical science, namely: circuit theory, electric and magnetic field theory, electronics, and electro-mechanical devices. These sequences occur in the sophomore and junior years, except for the last named, which is in the senior year. The freshman year is devoted to the necessary

[1] On leave

mathematical preparation and to general courses. Humanities courses, mathematics courses, and supporting physical and engineering science courses parallel the four electrical science stems.

The electrical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology. At the same time, the student has an opportunity to develop a degree of technical specialization by means of these electives.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected to form a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Electrical Engineering Option
Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Engineering 102	2
	15		16

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EE 211 Networks	3	EE 212 Networks	3
EM 211 Mechanics	3	EE 252 Laboratory I	1
English 205	3	EM 216 Mechanics	3
	17	Economics 201	3
			18

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
EE 311 Transients	3	EE 312 A.C. Circuits	3
EE 321 E. & M. Fields	3	EE 332 Electronics	3
EE 351 Laboratory II	1	EE 352 Laboratory III	1
ME 311 Thermodynamics I	3	ME 312 Thermodynamics II	3
Physics 311	3	Elective (Hum. or S.S.	3
Elective (Hum. or S.S.)	3	Elective (Hum. or S.S.)	3
	19		19

SENIOR YEAR

EE 421 E. & M. Fields	3	EE 442 Machinery	3
EE 431 Electronics	3	EE 452 Laboratory V	1
EE 441 Electromag. Devices	3	EE Electives	6
EE 451 Laboratory IV	1	Electives (Tech. or Hum.)	6
EE Elective	3		16
Elec. (Tech. or Hum.)	3		
	16		

Note: The 9 semester hours of Technical or Humanities Electives may be used:

1) To develop a particular area of interest within the humanities.
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology, etc.;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

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* Another 200 level course in economics may be substituted with the consent of both departments.

ELECTRICAL ENGINEERING COURSE DESCRIPTIONS

EE 211. RESISTIVE NETWORKS I. (3) Prerequisite: Math 141. Introduction to linear oriented graphs. Kirchoff's voltage and current equations. Definition and properties of important subgraphs: seg, circuit, tree, cotree, etc. Formation of seg and circuit matrices; the fundamental seg and circuit matrices. Definition and criteria for forming the seg and circuit basis matrices. Characterization of the network elements. Combination of the seg, circuit, and terminal equations into the primary system. Formal derivation of the mesh, node, and branch systems of equations. Formulation of the secondary systems of equations by matrix techniques. Power and energy functions. Effective and average values of time functions. Three hours.

EE 212. RESISTIVE NETWORKS II. (3) Prerequisite: EE 211. Secondary systems of equations directly from the graph (mesh, branch, and node). Driving point functions. Network theorems: superposition, reciprocity, Thevenin's and Norton's equivalents, etc., Delta and wye equivalents of three terminal R-graphs. The v(t)-i(t) interrelations for four terminal R-graphs: open, and short circuit, cascade, and hybrid parameters. Balanced and symmetric networks: tee, pi, and lattice equivalents. Bartlett's bisection theorem. Image and scattering parameters, cascaded networks, insertion function, and attenuators. N-terminal R-graphs. Three hours.

EE 252. LABORATORY I. (1) Corequisite EE 212. The first of a series of laboratories designed to instruct the student in the use of laboratory equipment and to illustrate the theory introduced in the paralleling or preceding courses. The laboratory sequence will be measurements-oriented and will develop increasing sophistication of experimental technique. Three hours.

EE 311. TRANSIENTS. (3) Prerequisite: EE 212. The study of the Laplace transform theorems, concepts, properties and techniques, and its application to networks. The formulation of network equations and the investigation of the transient and

steady state solutions of these equations for networks with step, pulse, periodic, and sinusoidal driving functions. Introduction to complex variables, residues, and partial fractions. Initial conditions, switching and transition transients. The vector transform as an introduction to the sinusoidal steady state. Three hours.

EE 312. ALTERNATING CIRCUIT THEORY. (3) Prerequisite: EE 311. Analysis and investigation of sinusoidal circuits: series, parallel, network theorems, matching, coupled circuits, etc., mesh, branch and node equations of RLCM multimesh networks in vector notation, both through matrix formulation and direct formulation from the graph. The Fourier series and its application to networks. Two and four terminal network equivalences, the methods for and the restrictions on their interconnections. Filter theory: conventional and image parameter methods. Three hours.

EE 321. INTRODUCTION TO ELECTROMAGNETIC FIELDS. (3) Prerequisite: EE 212. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations. Three hours.

EE 332. FUNDAMENTALS OF ELECTRONICS AND SEMICONDUCTORS. (3) Prerequisite: EE 311. A study of fundamental concepts and principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices: thyratrons, ignitrons, etc. Photoelectric devices. Amplifier and oscillator characteristics and their configurations. Three hours.

EE 351. LABORATORY II. (1) Prerequisites: EE 252, EE 311, and 321 parallel. A continuation of EE 252, involving experiments in the areas of circuit theory and fields. Three hours.

EE 352. LABORATORY III. (1) Prerequisites EE 312, and EE 332 parallel. A continuation of EE 351 involving experiments in the areas of circuit theory, electronics, and semiconductors. Three hours.

EE 391. PRINCIPLES OF ELECTRICAL ENGINEERING I. (4) Prerequisites: Physics 202, Mathematics 242. A study of the fundamental principles which underlie the analysis of electric, magnetic, and electronic devices. A study of the basic methods for analyzing electric and magnetic circuits for d.c., a.c. and

transient modes of operation. Laboratory experiments related to these studies.

EE 392. PRINCIPLES OF ELECTRICAL ENGINEERING II. (4) Prerequisite: EE 391. A study of the principles of operation of electric, electronic and electromagnetic instruments, devices, and machines. Laboratory experiments related to these studies.

EE 400. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. (Variable credit 1-4 hours) Prerequisite: Senior standing in Electrical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional electrical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EE 401. UNDERGRADUATE RESEARCH (Variable credit 1-4 hours) (This course may be repeated for credit.) Prerequisite: permission of the department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of electrical engineering. The course permits a student to pursue some particular area to a depth much greater than can be undertaken within the scope of existing courses. The topic of the investigation may originate from the student or from the faculty member who will supervise the study.

EE 411. NETWORK SYNTHESIS. (3) Prerequisite: EE 312. Positive real functions, their properties and methods of testing. Driving point synthesis of LC, RC, and RL networks into Foster and Cauer networks. One terminal pair RLC network synthesis using the Brune and Bott-Duffin methods. Realization of two terminal pair networks by ladders, Cauer networks, lattices and Darlington networks. Approximation methods. Three hours.

EE 412. NON-LINEAR ANALYSIS. (3) Prerequisite: EE 312. Solutions of non-linear problems using numerical methods, graphical methods, phase plane plots, analysis of singular points, and analytical techniques. The use of analogs and duals for writing equations. The use of the analog computer and digital computer. Three hours.

EE 421. ELECTROMAGNETIC WAVES. (3) Prerequisite: EE 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at

interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial lines and waveguides. Three hours.

EE 422. RADIATION AND MICROWAVE THEORY. (3) Prerequisite: EE 421. A study of radiation into free space; antenna theory. Microwave theory: components and junctions, methods of feeding, matching, terminations and generation. Microwave amplifiers and oscillators. Introduction to Laser theory. Three hours.

EE 431. ELECTRONICS. (3) Prerequisite: EE 332. A study of electronic and semiconductor devices: transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized transistor oscillator analysis. Three hours.

EE 432. COMPUTER ELECTRONICS. (3) Prerequisite: EE 431. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits. The introduction to microwave electronics, principles of electron devices including magnetrons, klystrons, traveling wave tubes and particle accelerators. Three hours.

EE 434. SOLID STATE ELECTRONICS. (3) Prerequisite: Physics 311. Band structure of solids. Electric analog for an array of atoms. Electron transport mechanisms in conduction, diffusion, tunneling. Electronic models of varactors, tunnel diodes, and solid state microwave devices.

EE 441. ELECTROMAGNETIC DEVICES. (3) Prerequisites: EE 312, EE 321. Magnetic circuits. Transformer principles, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns. Three hours.

EE 442. ELECTRIC MACHINERY. (3) Prerequisite: EE 441. Direct-current machines, induction machines. Machines in control systems. Synchronous machines. Fractional horsepower motors. Three hours.

EE 446. ELECTRIC POWER SYSTEM ANALYSIS. (3) Prerequisites: EE 312, EE 321. Transmission lines: constants, circuit representations, equations, circle diagrams. System representations, network equations and solutions. Load flow studies, economic operation, fault studies, stability studies. Three hours.

EE 451. LABORATORY IV. (1) Prerequisites: EE 312, EE 332, EE 352. A continuation of EE 352 involving experiments in the areas of circuit theory, electronics, and electromagnetics. Three hours.

EE 452. LABORATORY V. (1) Prerequisite: EE 451. A continuation of EE 451 involving experiments in electromagnetics, devices, and machines. Three hours.

EE 472. AUTOMATIC CONTROL SYSTEMS. (3) Prerequisite: EE 431. A basic study of closed-loop systems utilizing frequency response analysis. Design techniques are developed for desired performance criteria. Electrical, mechanical, and hydraulic systems are considered. Analog computer use in system studies. Three hours.

THE MECHANICAL ENGINEERING CURRICULUM

The curriculum in Mechanical Engineering is based upon sequences of engineering science courses in heat power, engineering mechanics, and mechanical design. These occur principally in the sophomore and junior years. The freshman year is devoted to the necessary mathematical preparation and to general courses. Humanities courses, physical science courses, and electrical science courses supplement the mechanical engineering science and design stems through the junior year.

The mechanical engineering elective courses in the senior year afford an opportunity to learn design procedures, and to obtain practice in applying engineering methodology.

The three electives designated "technical or humanities electives" afford an opportunity to prepare for a particular career objective. These courses are to be selected from a coherent group (usually forming a sequence) directly supporting one of the objectives stated in the four footnotes to the curriculum. They are to be as advanced as prerequisite preparation through the junior year makes possible, whether a humanities, technical, or supporting group of courses is chosen.

Mechanical Engineering Option

Requirements for a Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Chemistry 101	4	Chemistry 102	4
Engineering 100	1	Engineering 102	2
	15		16

SOPHOMORE YEAR

Mathematics 241	4	Mathematics 242	4
Physics 201	4	Physics 202	4
EM 211 Mechanics I	3	EM 321 Theory of Machines	3
ME 261 Engin. Materials	3	EM 214 Mechanics of Mat.	3
E 113 Graphical Analysis	1	Economics 201	3
English 201 or 205	3		17
	18		

JUNIOR YEAR

Mathematics 371	3	Mathematics 372	3
ME 311 Thermodynamics I	3	ME 312 Thermodynamics II	3
ME 312 Fluid Mechanics	3	ME 421 Design I	3
ME 351 Laboratory I	1	ME 352 Laboratory II	1
EE 391 Prin. of EE I	4	Elective (Hum. or S.S.)	3
Elective (Hum. or S.S.)	3	EE 392 Prin. of EE II	4
	17		17

SENIOR YEAR

ME 411 Heat Transfer I	3	ME 418 Heat Transfer II	3
ME 422 Design II	3	ME 452 Laboratory IV	1
ME 451 Laboratory III	1	ME Electives*	7
ME Elective*	3	Elective (Tech. or Hum.)	6
Physics 311	3		17
Elect. (Tech. or Hum.)	3		
Elective (Hum. or S.S.)	3		
	19		

* Two of the ME Electives are to be chosen from the design area and one from the heat power area, or vice versa.

Note: The 9 semester hours of Technical and Humanities Electives may be used:

1) To develop a particular area of interest within the humanities;
2) To prepare for graduate study through a selection of engineering, science, and mathematics courses;
3) To develop a supporting area of special interest, e.g., economics, management, industrial psychology;
4) To strengthen engineering design experience in preparation for beginning a career in industry immediately upon graduation.

The above objectives will not ordinarily be mixed, and the program of elective courses will be subject to advance approval by the department.

MECHANICAL ENGINEERING

ME 261. ENGINEERING MATERIALS. (3) Prerequisite: Sophomore standing or permission of the department. A study of the engineering design properties of materials. The relation of composition, structure, and process treatment of materials to these properties. A survey of the common metallic and nonmetallic materials with emphasis upon engineering applications.

ME 311. THERMODYNAMICS I. (3) Prerequisites: Phys. 202, Math 242. First and second law of thermodynamics. Work and heat. Entropy and Clausius inequality. Ideal and real gases. Nonreactive mixtures of gases. Availability and irreversibility. Vapor and gas power cycles.

ME 312. THERMODYNAMICS II. (3) Prerequisite: ME 311. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to statistical thermodynamics.

ME 321. THEORY OF MACHINES. (3) Prerequisite: EM 211. Application of dynamics to mechanical systems. Static-force analysis. Dynamic-force analysis of plane motion and space mechanisms.

ME 351. ME LAB I. (1) Corequisites: ME 261, ME 311, EM 214. Theory and principles of instrumentation. Measurement of thermodynamic properties, flow properties, and strain. Preparation of Engineering report. No lecture hours. One laboratory period of three hours a week.

ME 352. ME LAB II. (1) Prerequisite: ME 351. Corequisites: ME 312 and EM 312. Continuation of ME 351. Analysis of simple systems. No lecture hours. One laboratory period of three hours a week.

ME 400. SPECIAL TOPICS IN MECHANICAL ENGINEERING. (Variable credit 1-4) Prerequisite: Senior standing in Mechanical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional mechanical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ME 401. UNDERGRADUATE RESEARCH (Variable credit 1-4 hours) (This course may be repeated for credit.) Prerequisite: permission of the department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of mechanical engineering. The course permits a student to pursue some particular area to a depth much greater than can be undertaken within the scope of existing courses. The topic of the investigation may originate from the student or from the faculty member who will supervise the study.

ME 411. HEAT TRANSFER I. (3) Prerequisites: Math 371, EM 312, ME 311. Analysis of steady state and transient heat conduction. Heat transfer by radiation. Radiation networks. Gaseous radiation exchange.

ME 412. GAS DYNAMICS. (3) Prerequisites: ME 311, EM 312. Compressible flow equations, isentropic flow, normal shock waves. Fanno and Rayleigh line flows.

ME 413. EXPERIMENTAL STRESS ANALYSIS. (3) Prerequisite: EM 214. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on elec-

trical strain gages and instrumentation; brittle coatings and photoelasticity.

ME 414. REFRIGERATION. (3) Prerequisite: ME 311. Vapor compression, absorption and low temperature refrigeration cycles and systems.

ME 415. ENERGY CONVERSION I. (3) Prerequisites: ME 312, Corequisite: ME 411. Application of the basic concepts of thermodynamics, heat transfer and fluid flow to power plant problems.

ME 416. ENERGY CONVERSION II. (3) Prerequisite: ME 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, therminoic converters, solar and fuel cells.

ME 418. HEAT TRANSFER II. (3) Prerequisite: ME 411. Natural and forced convection based upon boundary layer theory. Heat transfer in fluids with change in phase. Introduction to mass transfer.

ME 421. DESIGN I. (3) Prerequisite: ME 321. Senior standing. Technical application of the basic principles of the mechanical sciences to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

ME 422. DESIGN II. (3) Prerequisite: ME 421. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

ME 424. MECHANICAL VIBRATIONS. (3) Prerequisites: ME 321, Math 371. Study of vibratory motion, including one or more degrees of freedom, with and without damping.

ME 451. ME LAB III. (1) Prerequisite: ME 352 and Senior standing. The selection of appropriate instrumentation and the experimental analysis of a predetermined small scale engineering system. No lecture hours. One laboratory period of three hours a week.

ME 452. ME LAB IV. (1) Prerequisite: ME 451. Continuation of ME 451.

ME 472. AUTOMATIC CONTROLS. (3) Prerequisite: Senior standing. Closed-loop control systems. Application of transfer function analysis.

ENGINEERING ORIENTATION AND GRAPHICS

E 100. INTRODUCTION TO ENGINEERING. (1) Survey of the professional fields in engineering, the work of the engineer, requirements in training and character, professional ethics. A preview of opportunities for careers in engineering.

E 102. INTRODUCTION TO ENGINEERING ANALYSIS. (2) An introduction to the engineering approach to problem solving. Use of elementary mathematics and statistics, curve plotting, data analysis, slide rule operation, and other engineering tools and techniques to solve problems in all branches of engineering. Elements of engineering drawing. One one-hour and one two-hour session per week.

E 113. GRAPHICAL ANALYSIS. (1) Prerequisite: E 102. Application of graphical methods to solve mechanical engineering problems. Graphical solution of vector equations. Graphic statics. Graphical integration and differentiations. Drawing of machine elements. One three-hour laboratory per week.

ENGINEERING MECHANICS AND ENGINEERING MATERIALS

EM 211. MECHANICS I. (3) Corequisite: Math 142. Statics, forces, moments and couples. Resultants of forces. Systems in mechanical equilibrium. Elements of kinematics. Introduction to dynamics. Motion of particles and rigid bodies.

EM 214. MECHANICS OF MATERIALS. (3) Prerequisite: EM 211. Dynamic concepts of work, energy, impulse, and momentum. Elements of continuum mechanics. Properties of solid surfaces and volumes. Hydrostatics and hydrodynamics. Stress-strain relationships in solid continua. Shear and moment diagrams. Torsion, stress, strain, bending, and deflection in structural elements.

EM 216. PHYSICAL PROPERTIES OF MATERIALS. (3) Prerequisite: EM 211. Completion of dynamics topics. Work and energy. Conservation of energy and momentum. Statics and dynamics of submicroscopically discontinuous materials. Principles of atomic and crystal structure. Solid solutions and elementary alloying theory. The nature of electrical, magnetic, and other physical properties of conductors, insulators, and semiconductors. The dependence of these properties upon structure and composition.

EM 312. FLUID MECHANICS. (3) Prerequisites: ME 311, Math 242. Properties of fluids, fluid statics, derivation and application of equations for conservation of mass, energy, linear momentum and angular momentum. Dimensional analysis and dynamic similitude. Viscous effects. Ideal fluid flow.

EM 461. PHYSICAL METALLURGY I. (3) Prerequisites: ME 261 or EM 216, ME 311. Types and classifications of materials. Atomic and crystal structure. Physical properties. Phase diagrams, alloy theory, kinetics of metallurgical processes, and phase transformations.

EM 462. PHYSICAL METALLURGY II. (3) Prerequisite: EM 461. Deformation and fracture theory. Mechanical properties, strengthening concepts, heat treating and property control. Design, fabrication, and application considerations.

CIVIL ENGINEERING

CE 211. SURVEYING I. (3) Prerequisite: Mathematics 141. Elements of plane surveying including taping, transit, level, stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; construction surveys; earthwork computations; route surveys and design; simple, compound, parabolic, and spiral curves; chaining equations. One lecture hour, two problem solving hours, and one laboratory period of three hours a week.

CE 212. SURVEYING II. (3) Prerequisite: Civil Engineering 211. Continuation of Civil Engineering 211. One lecture hour, two problem solving hours and one laboratory period of three hours a week.

Review Class for North Carolina Engineering Registration Examination

The forty-two hours of work in this course include a review of the fundamentals of engineering.

ENGLISH

Professors McEniry, Wallace, Acting Chairman; Associate Professors Ellis, McCall, Moose; Assistant Professors Mason, Shapiro; Instructors Atwell, Bryan, Bush, Cook, Gatlin, Hartog, Patterson, Valentine, Watson

A major in English leading to the B.A. degree (except for students in the elementary teachers certification program) consists of 30 hours of courses above English 102. Required courses are 201, 202 (6); Shakespeare (3); one English and one American period course (6); one upper division course in language or composition (3); the Senior Colloquium (3); and 9 additional hours within the department. Majors in English must take 3 hours in the history of England. Related work consists of 15 semester hours.

A major in English for students in the elementary teachers certification program consists of 24 hours of English beyond English 102, including English 201, 202 (6); Shakespeare (3); English Grammar (3); one English and one American period course (6); the Senior Colloquium (3); and 3 additional hours within the department. Majors in the elementary certification program must take 3 hours in the history of England or of the United States. Related work consists of 15 hours.

101. ENGLISH COMPOSITION. (3) Readings and intensive practice in writing, especially exposition, with emphasis on rhetorical effectiveness.

102. ENGLISH COMPOSITION. (3) Prerequisite: English 101 or advanced placement. Critical writing, collateral reading, and introduction to literary study.

201. ENGLISH LITERATURE. (3) Prerequisite: English 102. Intensive study of the masterpieces of British literature in chronological sequence before 1700. Not open to students with credit for English 205.

202. ENGLISH LITERATURE. (3) Prerequisite: English 201 or 205. British literary masterpieces since 1700.

203. MASTERPIECES OF MODERN FICTION. (3) Prerequisite: English 201 or 205. Readings in selected novels and short stories written since 1850. Not open to majors.

204. MAJOR AMERICAN WRITERS. (3) Prerequisite: English 201. Extensive readings in six to eight authors. Recommended for non-English majors who are working for teachers certificates. Not open to majors.

205. READINGS IN WESTERN LITERATURE. (3) Prerequisite: English 102. Ancient, British, and American writings, emphasizing basic themes and literary forms. Not open to students with credit for English 201.

NOTE: Prerequisite for 300 and 400 level courses: six semester hours of English on the 200 level, unless otherwise specified.

301. MASTERPIECES OF EUROPEAN LITERATURE. (3) Reading of complete Greek and Latin works in translation: epic, drama, history, oratory, and lyric poetry.

302. MASTERPIECES OF EUROPEAN LITERATURE. (3) Readings in Dante, Erasmus, Montaigne, Moliere, Dostoevsky, Tolstoy, and others.

303. CHILDREN'S LITERATURE. (2) Critical study of representative reading materials and approaches to literature appropriate for elementary school children. Does not count toward an English major.

305. ADVANCED COMPOSITION. (3) The writing of essays, criticisms, various forms of exposition, and short narratives.

311. CHAUCER. (3) *The Canterbury Tales, Troilus and Criseyde,* and selected minor works.

312. SHAKESPEARE. (3) Twelve of his major plays from the comedies, tragedies, and histories.

313. MILTON. (3) The major poems and selections from the minor works.

321. THE EARLIER SEVENTEENTH CENTURY. (3) The major writers from the beginning of the century through Milton and Bunyan.

323. ENGLISH LITERATURE, 1660-1785. (3) Poetry and prose from Dryden through Johnson; collateral readings in drama and the novel.

325. THE ROMANTIC ERA, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge, and other major poets.

326. THE VICTORIAN ERA, 1832-1900. (3) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, and Newman.

331. THE ENGLISH LANGUAGE. (3) Origins and development of the English language and its present usage.

332. ENGLISH GRAMMAR. (3) English grammar with particular emphasis on modern usage; some relations of grammar and composition.

341. AMERICAN LITERATURE, 1820-1890. (3) The chief writers and literary movements from Irving through Whitman.

342. AMERICAN LITERATURE SINCE 1890. (3) The chief writers and movements from Howells to the present.

343. THE AMERICAN NOVEL OF THE NINETEENTH CENTURY. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, with primary attention to approximately eight or ten representative novels.

344. THE AMERICAN NOVEL OF THE TWENTIETH CENTURY. (3) Major novelists and traditions from the emergence of naturalism to the present, with primary attention to approximately eight or ten representative novels.

401. LITERARY CRITICISM. (3) Prerequisite: fifteen hours of English. The major schools and individual critics; readings in the history of criticism and composition of critical papers.

413. ENGLISH POETRY AND PROSE OF THE SIXTEENTH CENTURY. (3) The major works, excluding drama, More through Spenser, with attention to the development of the lyric.

421. THE ENGLISH NOVEL BEFORE SCOTT. (3) Major writers and traditions, Defoe through Jane Austen.

422. THE ENGLISH NOVEL FROM SCOTT THROUGH THE VICTORIANS. (3) Major writers and traditions through Hardy.

423. THE MODERN BRITISH NOVEL. (3) Representative British novels showing the philosophies and techniques affecting British fiction, from Hardy to the present.

431. ENGLISH DRAMA BEFORE 1642. (3) Representative plays with emphasis on the chief Elizabethan, Jacobean, and Caroline dramatists from Lyly to Ford, excluding Shakespeare.

441. COLONIAL AND EARLY AMERICAN LITERATURE. (3) American literature from Colonial times through Washington Irving.

450. MODERN POETRY. (3) Chief British and American poets of this century.

451. MODERN DRAMA. (3) Representative British and American plays from Shaw to the present.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental Chairman. Lectures, discussion, and student reports.

FINE ARTS

Professor Mathis, Chairman

ART

Assistant Professor Gatewood, Instructor Anderson

201. ART APPRECIATION. (3) An introduction to art history and appreciation covering basic concepts, aesthetic aims, and social influences which characterize and differentiate one civilization or period from another. Three lecture hours each week.

203. BASIC DESIGN. (3) A beginning studio course to introduce the student to the fundamentals of organization, composition, and use of color in two dimensional design. Six studio hours each week.

204. BASIC DRAWING. (3) A beginning studio course in which the various media and approaches to drawing are investigated Six studio hours each week.

205. PAINTING. (3) A beginning studio course investigating techniques and approaches in painting. Six studio hours each week.

302. ART FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite or corequisite: Education 303. A study of materials and techniques which the teacher may use in art activities in the school. Four studio hours each week.

310. ANCIENT ART. (3) A study of painting, sculpture and architecture from the pre-classical civilizations through the Roman Empire. Three lecture hours each week.

312. RENAISSANCE ART. (3) A study of the painting, sculpture, and architecture of Italy and of Northern Europe during the Renaissance. Three lecture hours each week.

314. POST RENAISSANCE ART. (3) A study of the painting, sculpture and architecture of Europe from the Baroque period through the early nineteenth century. Three lecture hours each week.

316. MODERN ART. (3) A study of western painting, sculpture and architecture from the mid-nineteenth century to the present. Three lecture hours each week.

320. GENERAL CRAFTS. (3) Prerequisite: Art 203. An introductory studio course in the various craft media and techniques including ceramics, metal, wood and fiber. Six studio hours each week.

330. SCULPTURE. (3) Prerequisites: Art 203 and Art 204. A beginning studio course designed to investigate various media and approaches in sculpture. Six studio hours each week.

405. PAINTING. (3) Prerequisities. Art 203, 204, and 205. A studio course planned to increase the student's knowledge of, and investigations in painting. Six studio hours each week.

MUSIC

Professor Mathis, Chairman; Instructors Boyette, Pfohl (part-time), Spivak (part-time), Woodruff (part-time)

101. ELEMENTARY THEORY OF MUSIC. (3) Fundamentals of music, sight-singing, ear-training, dictation, beginning keyboard harmony. Two lecture hours and one two-hour laboratory per week.

102. ELEMENTARY THEORY OF MUSIC. (3) Prerequisite: Music 101. Continuation of Music 101.

207. APPRECIATION OF MUSIC. (3) The enjoyment of music through intelligent listening, with attention to musical forms, style, and the relationship of music to the whole culure. Both instrumental and vocal works will be studied.

209. HISTORY OF MUSIC. (3) Music from its origins through the Baroque Period.

210. HISTORY OF MUSIC. (3) Music from the Baroque to the present.

307. MUSIC FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite or corequisite: Education 303. Methods and materials of instruction which the teacher can apply in a music program in the elementary school.

INDIVIDUAL INSTRUCTION

151-152, 251-252. PIANO.

161-162, 261-262. VOICE.
NOTE: Each semester, two one-half hour meetings a week, two

credit hours. A maximum of eight semester hours of individual music instruction may be counted toward a degree.

ENSEMBLE

181-182, 281-282, 381-382. CHORUS.

NOTE: Each semester, one credit hour. A maximum of six credit hours in chorus may be counted toward a degree.

SPEECH AND THEATRE

Associate Professor Nicholson; Instructor Nugent

101. FUNDAMENTALS OF SPEECH. (3) Training in voice and diction to develop effective delivery. The composition and presentation of speeches.

111. INTRODUCTION TO THEATRE. (3) A survey of the art of the actor, director, designer, and playwright; reading of selected plays and analysis of dramatic form.

201. ORAL INTERPRETATION OF LITERATURE. (3) Prerequisite: Sophomore standing. Intensive training in voice and diction. Analysis and presentation of selected English and American literature.

203. ARGUMENTATION AND DEBATE. (3) Principles of argumentation and debate, including analysis, brief-making, evidence, reasoning, and refutation; class debating on vital issues. Prerequisite: Speech 101 or consent of instructor.

211. THEATRE WORKSHOP. (2) An acting laboratory. Development of a creative approach to acting through exercises in concentration, pantomime, improvisation, characterization. Three hours weekly.

212. THEATRE WORKSHOP. (2) Prerequisite: Speech 211. Emphasis on the disciplines of acting technique. Analysis and presentation of selected scenes from plays.

301. GREEK AND ROMAN DRAMA IN TRANSLATION. (3) Prerequisite: 6 semester hours of literature on the 200 level or above. A study of selected plays of Aeschylus, Sophocles, Euripides, Plautus, Terence, and Seneca with emphasis on dramaturgy and the development of the Greek and Roman theatre.

FOREIGN LANGUAGES

Professors Turner, Chairman, Macy; Associate Professors Bush, Hoyle, Slechta; Assistant Professors Gabriel, Littlejohn, Lopez, Saman; Instructors Brooks, Hopper, Sabates, Wruck

Programs in each of the several foreign languages offered are designed to give a student competence in four skills—understand-

ing, speaking, reading, and writing the given language, to acquaint him with the culture and civilization of the country or countries where that language is spoken, especially their literature, and to give him some understanding of the people who speak it. Major programs include advanced linguistic analysis of sound systems and structure and are designed to prepare students for certification by the North Carolina State Department of Public Instruction or graduate work in the major field.

Placement

The Department of Foreign Languages will recommend the placement of a student in a class of a level commensurate with his demonstrated competence at the time of enrollment considered together with his prior language training or experience. (See pages 63-65.)

Laboratory

All foreign language courses at the 100 and 200 level, as well as those numbered 301 and 302, meet for three class hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

See pages 63-65 for general foreign language requirements for degree candidates.

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Science[1]	4	Science	4
Foreign Language[2]	3	Foreign Language	3
	16		16

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 202 (203)	3
Social Science	3	Social Science	3
Science	4	Science	4
Elective	3	Elective	3
Foreign Language	3	Foreign Language	3
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language	3	Foreign Language	3
Foreign Language	3	Foreign Language	3
Elective	3	Elective	6
Elective	3	Related Work	3
Related Work[3]	3	Related Work	3
	15		18

SENIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 4xx	3	Foreign Language 4xx[4]	3
Foreign Language 4xx	3	Foreign Language 4xx	3
Elective	3	Elective	3
Related work	3	Elective	3
Related Work	3	Related Work	3
	15		15

Total Hours: 127

[1] Total required: 16 hours; at least 4 hours from each group:
Group A: Chemistry, Physics, Geology, Geography 101;
Group B: Biology, Psychology 201.

[2] No credit towards a major will be allowed for any 101 or 102 course.

[3] Related Work totaling 18 hours, to be approved by the departmental chairman, may be selected from: Fine Arts, History, English Literature, Linguistics, Political Science, Economics, Anthropology, Philosophy, or additional science courses.

[4] Students preparing to teach in the public secondary schools should complete 400 level course requirements for major prior to the semester in which they are to take the Block Schedule in Education (See page 88.)

FRENCH

A major in French leading to the B.A. degree consists of French 201, 202, 301, 302, 303, 304, 331, and at least 12 hours on the 400 level, including either 491 or 492. In addition, eighteen hours of related work approved by the department will be required. Teaching candidates with a major in French must also take French 309.

101. ELEMENTARY FRENCH. (3) Fundamentals of French grammar and phonetics, reading, and conversation. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY FRENCH. (3) Prerequisite: French 101, or permission of the department. Continuation of French 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE FRENCH. (3) Prerequisite: French 102, or permission of the department. Review grammar, with composition and conversation based upon readings on French culture and civilization. Three class hours and two hours of laboratory work per week.

202. INTERMEDIATE FRENCH. (3) Prerequisite: French 201, or permission of the department. Review grammar, composi-

tion, and conversation, based upon readings in French prose. Three class hours and two hours of laboratory work per week.

301. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: French 202, or permission of the department. For prospective teachers of French and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: French 202, or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF FRENCH LITERATURE TO 1800. (3) Prerequisite: French 202, or permission of the department. Selected readings in prose and poetry from the Middle Ages to 1800. Emphasis on each literary movement. Book reports on collateral readings.

304. SURVEY OF FRENCH LITERATURE SINCE 1800. (3) Prerequisite: French 202, or permission of the department. Continuation of French 303. Book reports on collateral readings.

309. FRENCH CIVILIZATION. (3) Prerequisite: French 202, or permission of the department. Composition and conversation based on readings in French culture, civilization, art, and literature. Three class hours per week.

331. FRENCH PHONETICS. (3) Prerequisite: French 202, or permission of the department. Study of the sounds of the French language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week.

401. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

403. FRENCH LITERATURE OF THE NINETEENTH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

405. THE AGE OF ENLIGHTENMENT. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

408. THE CLASSICAL PERIOD. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

414. FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

416. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Special problems in the major field. Collateral readings and term papers. Either 491 or 492 is required of all French majors.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Intensive study of special areas or literary figures in the major field. Either 491 or 492 is required of all French majors.

GERMAN

101. ELEMENTARY GERMAN. (3) Fundamentals of German grammar and phonetics, reading, and conversation. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY GERMAN. (3) Prerequisite: German 101 or permission of the department. Continuation of German 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE GERMAN. (3) Prerequisite: German 102 or permission of the department.

202. INTERMEDIATE GERMAN. (3) Prerequisite: German 201 or permission of the department.

301. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: German 202 or permission of the department. For prospective teachers of German and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: German 202 or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports on collateral readings.

304. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. German literature since classicism. Book reports on collateral readings.

309. GERMAN CIVILIZATION. (3) Prerequisite: German 202 or permission of the department. Composition and conversation based on readings in the culture, civilization, art, and literature of German-speaking countries.

311. SELECTED READINGS IN GERMAN LITERATURE I. (3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

312. SELECTED READINGS IN GERMAN LITERATURE II. (3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

321. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

322. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

331. GERMAN PHONETICS. (3) Prerequisite: German 202 or permission of the department. Study of the sounds of the German language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week. Transcription exercises and student recordings.

401. GERMAN CLASSICISM. (3) Prerequisite: two 300-level courses or permission of department. Storm and Stress. Early classicism. Book reports on collateral readings.

402. GERMAN ROMANTICISM. (3) Prerequisite: two 300-level courses or permission of department. Late classicism and romanticism. Book reports on collateral readings.

407. GERMAN POETRY FROM HOELDERLIN TO THE PRESENT. (3) Prerequisite: two 300-level courses or permission of department. An analysis of the chief lyric poets, literary movements, and types of German poetry.

414. TWENTIETH CENTURY GERMANY AS REFLECTED IN LITERATURE. (3) Prerequisite: two 300-level courses or permission of department. Political and social events from World War I to the present day, as reflected in German literature. Book reports on collateral readings.

RUSSIAN

101. ELEMENTARY RUSSIAN. (3) Fundamentals of Russian grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three class hours and two laboratory periods a week.

102. ELEMENTARY RUSSIAN. (3) Prerequisite: Russian 101. Continuation of Russian 101. Graded readings. Three class hours and two laboratory periods a week.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, 309 or 310, and 12 hours of Spanish courses on the 400 level, which must include Spanish 491. Students who plan to teach in public secondary schools must also take Spanish 331. Eighteen hours of related work will be required.

101. ELEMENTARY SPANISH. (3) Introduction to Spanish, with emphasis on auditory comprehension, oral production and control of structure. Three hours of class and two hours of laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY SPANISH. (3) Continuation of Spanish 101, with greater attention to reading and writing. Three hours of class and two hours laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 102 or permission of department. Reinforcement and expansion of skill mastery developed in elementary courses on basis of selected readings and analysis of structure. Three hours of class and two hours laboratory per week.

202. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 201. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish-American literature. Three hours of class and two hours of laboratory per week.

301. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of the department. For

prospective teachers of Spanish and students who want intensive oral and written work in the language. Both written and oral composition. Reports on collateral reading. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

302. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of department. Advanced structural analysis and oral and written composition. Reports of collateral readings. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

303. INTRODUCTION TO SPANISH LITERATURE I. (3) Prerequisite: Spanish 202 or permission of department. Reading and analysis of representative master works of Spanish literature from its origins through the Golden Age. Course conducted in Spanish.

304. INTRODUCTION TO SPANISH LITERATURE II. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 303 with emphasis on literature of the nineteenth and twentieth centuries. Course conducted in Spanish.

309. SPANISH CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An overview of the cultural heritage of peninsular Spain. Lecture, discussion, recitation on basis of assigned readings. Course conducted in Spanish.

310. SPANISH AMERICAN CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An introduction to the cultural heritage of the eighteen Spanish American countries. Lecture, discussion, recitation on the basis of assigned readings. Course conducted in Spanish.

331. SPANISH PHONETICS. (3) Prerequisite: Spanish 202 or permission of department. Detailed analysis of description and production of Spanish sounds. Practical exercises to include phonetic transcription and recordings. Two hours of class and two hours of laboratory a week.

401. MODERN SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of the department. Survey of peninsular literature from *costumbrismo* through the Generation of 1898. Lectures, discussions and reports on basis of extensive collateral reading. Course conducted in Spanish.

402. CONTEMPORARY SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of department. Treatment of major literary developments from the Generation of 1898 to the present day. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

405. THE GOLDEN AGE OF SPANISH LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. El Lazarillo through El Criticon. Lecture, discussion and reports on basis of extensive collateral reading. Course conducted in Spanish.

406. THE GOLDEN AGE OF SPANISH LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Study of works of the leading dramatists and poets of the period with emphasis on Lope, Tirso de Molina, Ruiz de Alarcon and Calderon. Lectures, discussions and reports on basis of extensive collateral readings. Course conducted in Spanish.

407. SPANISH LITERATURE OF THE MIDDLE AGES AND RENAISSANCE. (3) Prerequisite: two 300 level courses or permission of department. Lectures, discussions and reports on basis of extensive collateral readings.

409. SPANISH AMERICAN LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. Survey of Spanish American literature from the colonial period through Romanticism. Lectures, discussion and reports on the basis of assigned readings. Course conducted in Spanish.

410. SPANISH AMERICAN LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Introduction to the literature of the eighteen Spanish American countries from Modernism through the contemporary period. Lectures, discussion, and reports on the basis of assigned readings. Course conducted in Spanish.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Comprehensive review of the major field.

492. SELECTED READINGS IN SPANISH. (3) Prerequisite: two 300 level courses of permission of department. Consideration in depth of a predetermined author or literary movement. Course conducted in Spanish.

GEOGRAPHY AND GEOLOGY

Associate Professor Schul, Acting Chairman; Assistant Professor Alker; Instructors Clay, Smith (Part-time)

GEOGRAPHY

101. PHYSICAL GEOGRAPHY. (4) Land forms, mineral resources, climate, vegetation, soils, and water from the point of view of their significance to economic activities. Three

lecture hours and one laboratory period of two hours a week.

102. REGIONAL WORLD GEOGRAPHY. (3) A world regional study which emphasizes the distinctly human responses of man to various geographic situations throughout the world. The nature and development of cultural regions will be studied.

201. ECONOMIC GEOGRAPHY. (3) Prerequisite: Geography 101 or 102. A study of the location and functioning of economic activity with an emphasis on physical and human geographic factors in analyzing patterns of production, exchange, and consumption.

202. ELEMENTARY CARTOGRAPHY. (3) Prerequisite: Geography 101. Emphasis to be focused on tools of map making, map design and construction and the interpretation of aerial photographs and topographic maps. Two lecture hours and one laboratory period of two hours a week.

301. GEOGRAPHY OF LATIN AMERICA. (3) A regional study of the basic human and physical differences from place to place which affect economic, social, and political conditions of the Latin American countries.

302. GEOGRAPHY OF NORTH AMERICA. (3) A regional study of the physical features of North America and their relationships to the economic and cultural development of the United States and Canada.

303. GEOGRAPHY OF EUROPE. (3) A regional study of geographic conditions and their relationship to economic, social and political problems of Europe.

307. GEOGRAPHY OF ASIA. (3) A regional study emphasizing the relationships that exist between the physical environment and the cultural patterns in geographic regions of Asia.

310. HISTORICAL GEOGRAPHY OF ANGLO-AMERICA. (3) A study of the evolution of existing geographical patterns in the United States by examining the geography of selected historical periods.

311. POLITICAL GEOGRAPHY. (3) A study of the concepts of political geography as developed through topical studies of political phenomena as related to geographical features. Contemporary problems in international affairs will be considered.

312. URBAN GEOGRAPHY. (3) A study of the distribution, internal structure and functions of various types of urban developments. Field trips to be arranged.

313. MANUFACTURING GEOGRAPHY. (3) A study of factors relating to the nature, location, and development of manufacturing industries. Emphasis upon location theory, classification of manufactures, principal areas of manufacturing activity, and the interrelationships between manufacturing and other phases of economic geography. Field trips to be arranged.

314. CONSERVATION AND RESOURCE PLANNING. (3) A study of the resources of the United States especially as they pertain to population, their use and misuse, and present conservational practices as they relate to planning for future resource adequacy. Field trips to be arranged.

341. PHYSIOGRAPHY OF THE UNITED STATES. (3) A study of the physiographic regions of the United States, the genesis and pattern of the major landforms included within each, their distinctive characteristics, and their cartographic interpretation.

GEOLOGY

201. PHYSICAL GEOLOGY. (4) The nature and occurrence of rocks and minerals, together with crustal features of the earth's surface. Emphasis on earth phenomena. Three lecture hours and one laboratory period of two hours a week.

202. HISTORICAL GEOLOGY. (4) Prerequisite: Geology 201, Geography 101, or Biology 101. Emphasis on stratigraphic and fossil history of the earth as found in the earth's crust together with the necessary information on both plant and animal kingdoms to trace the evolution of life. Three lecture hours and one laboratory period of two hours a week. Two or more one-day field trips to be arranged.

301. MINERALOGY. (4) Prerequisites: Chemistry 102; Geology 201. Identification of the common and economically important minerals by means of the physical properties; chemical tests. Principles of crystallography. Three lecture hours and one laboratory period of three hours a week.

302. GEOMORPHOLOGY. (4) Prerequisite: Geology 201. Major earth features and their origin with particular reference to North America. Three lecture hours and one laboratory period of two hours a week.

352. VERTEBRATE PALEONTOLOGY. (4) Prerequisite: Geology 202 or Biology 101 (This course is the same as Biology 352). Evolution of vertebrate animals from the first fishes to man. Three lecture hours and one laboratory period of two hours a week.

HEALTH AND PHYSICAL EDUCATION

Assistant Professor Murphy, Acting Chairman; Instructors Bostian, Fleming

HEALTH EDUCATION

101. HEALTH EDUCATION. (1) A general introductory course. Basic ideas of human anatomy, physiology, and chemistry are applied toward an understanding of human health problems. Two lecture hours a week.

409. HEALTH EDUCATION LABORATORY. (3) Prerequisite: Education 303. Health instruction, principles of health teaching for the elementary grades.

PHYSICAL EDUCATION

101. FOUNDATIONS OF PHYSICAL ACTIVITY. (1) The application of various physical training programs designed to improve and maintain physical fitness. One-sixth of the meeting time will be devoted to lectures on physiological and psychological aspects of physical training. Three one-hour meetings a week.

102. TEAM SPORTS. (1) The skills and rules of two sports selected from soccer football, rugby football, field hockey, speedball, and volleyball will be taught. Three hours each week.

114. FENCING. (1) The skills and rules of the sport of fencing will be taught. Three hours each week.

409. PHYSICAL EDUCATION LABORATORY. (3) Prerequisite: Education 303. Physical education instruction, principles of physical education teaching for the elementary grades.

HISTORY

Professors Rieke, Chairman, Abernathy, Hall; Assistant Professors Morrill, Perzel, Ploger, Robbins; Instructors Deal, Yielding

A major in History leading to the B.A. degree, except for students in the elementary certification program, consists of 32 semester hours of history, including Modern Western Civilization (101-102), American History (201-202), and Tutorial in History (491). Related work consists of 15 semester hours.

A major in History leading to the B.A. degree for students in the elementary certification program consists of 27 hours of his-

tory, including Modern Western Civilization 101-102) and American History (201-202). Related work consists of 21 hours as outlined in the general requirements of the elementary certification program.

Certification in history (Secondary School Teaching) is made possible by satisfactory completion of a major.

Students majoring in history, who plan to be certified in both history and social studies (Secondary School Teaching), must complete in addition to their requirements for a history major, 21 semester hours in three or more of the following disciplines: anthropology, economics, geography, political science, sociology. Fifteen of these hours in two of these disciplines may be counted for related work.

Except by special permission, no student may enroll in a 300-400 level course without Junior-Senior standing.

101. MODERN WESTERN CIVILIZATION TO 1815. (3) This course commences with a broad survey of Ancient and Medieval contributions to Modern Western Civilization and then treats intensively the development of Western Civilization from the Renaissance to 1815.

102. MODERN WESTERN CIVILIZATION FROM 1815 TO THE PRESENT. (3) Prerequisite: History 101. Continuation of History 101 with greater emphasis on developments outside the Atlantic community of Western Civilization.

201. AMERICAN HISTORY. (3) Survey of American history from the earliest times to 1865.

202. AMERICAN HISTORY. (3) Survey of American history from 1865 until the present.

303. HISTORY OF GREECE. (3) A brief study of the Ancient Near East followed by an intensive study of Greece to 332 B. C.

304. HISTORY OF ROME. (3) From the beginning of civilization in Italy to the reign of Justinian and the decline of the Empire in the West.

305. ANCIENT HISTORY. (3) From the earliest civilizations until the fourth century A.D.

306. MEDIEVAL HISTORY. (3) Political and cultural developments from the late Roman Empire until the Renaissance.

307. RENAISSANCE AND REFORMATION. (3) The intellectual and religious transformations of the early modern period and their political repercussions, 1300-1648.

311. RUSSIAN HISTORY. (3) Survey of Russian history until 1825.

312. RUSSIAN HISTORY. (3) Survey of Russian history from 1825 until the present.

317. NINETEENTH CENTURY EUROPE, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna. Emphasis will be placed on liberalism, nationalism, imperialism, and the diplomatic agreements leading to World War I.

318. TWENTIETH CENTURY EUROPE, 1914 TO THE PRESENT. (3) A review of the causes and results of World War I followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II, and the post-war period.

333. AMERICAN ECONOMIC HISTORY. (3) Prerequisite: consent of department. Development of a national economy, including monetary and banking problems, industrialization, and problems of labor and agriculture.

334. AMERICAN LABOR HISTORY. (3) Prerequisite: consent of department. Life and thought of American workingmen from the colonial period to the present, with attention to both the individual and to the development of labor organizations.

336. ORIGINS OF THE AMERICAN CONSTITUTION. (3) Prerequisite: History 201 or 202. The historical and philosophical background which led to the adoption of the American Constitution. Emphasis is placed on the Constitution's heritage from the Enlightenment, and the English and Colonial background. The course traces the writing and development of the Constitution through the Marshall Court.

339. HISTORY OF NORTH CAROLINA. (3) Prerequisite: History 201 and consent of department. Emphasis on the colonial developments and on the constitutional, educational and transportation developments of the ante-bellum period.

340. THE FRONTIER IN AMERICAN HISTORY. (3) A study of the influence of the moving frontier line on the historical development of the United States. Emphasis will be placed on the trans-Mississippi western United States. For comparative purposes some considerations will be given to other world frontiers.

343. COLONIAL AMERICA. (3) Prerequisite: History 201. Colonial history from the discoveries to 1763.

344. THE AMERICAN REVOLUTION AND EARLY NATION. (3) Prerequisite: History 201. The achievement of independence and the formation of a national government, 1763-1800.

361. BRITAIN TO 1485. (3) Survey of British history with emphasis on institutional, cultural, economic, and imperial developments.

362. MODERN BRITAIN, 1485-1789. (3) Continuation of History 361 with some treatment of the British Empire.

363. MODERN BRITAIN AND THE BRITISH EMPIRE SINCE 1789. (3) Continuation of History 362 with greater emphasis on the Empire and Commonwealth.

401. THE AGE OF ABSOLUTISM. (3) The problems of statecraft in the major continental countries, with some emphasis on cultural developments, 1648-1789.

402. FRENCH REVOLUTION AND NAPOLEON. (3) The changes in French politics and society and their effect on the Western World, 1789-1815.

417. EUROPEAN DIPLOMATIC HISTORY, 1756-1848. (3) A survey of the major developments in European diplomacy from the Diplomatic Revolution to the revolutions of the mid-nineteenth century.

418. EUROPEAN DIPLOMATIC HISTORY, 1848 TO THE PRESENT. (3) A survey of the major developments in European diplomacy beginning with the revolutions of the mid-nineteenth century.

431. AMERICA IN CRISIS, 1824-1860. (3) Prerequisite: History 201. A consideration of the new American nation in crisis. Attention is given to the development of nationalism under Jackson, the expansion of the new nation, the growth of sectionalism, and the events leading to secession.

432. CIVIL WAR AND RECONSTRUCTION, 1860-1877. (3) Prerequisite: History 201 or 202. A study of the American people in war and post-war adjustment. Emphasis is placed on the political, social, and economic conditions of the North and South during the Civil War and Reconstruction period.

433. AMERICAN SOCIAL AND INTELLECTUAL HISTORY TO 1860. (3) Prerequisite: History 201. Development of American social institutions and thought from the beginnings to the Civil War. The course is conducted as a colloquium, combining lectures, discussions, extensive reading, and oral reports and a research paper by each student.

434. AMERICAN SOCIAL AND INTELLECTUAL HISTORY SINCE 1860. (3) Prerequisite: History 202. Continuation of History 403 from the Civil War to the present.

461. TUDOR ENGLAND, 1485-1603. (3) Treatment in depth of the English Reformation, the English Renaissance, and the

creation of English naval and economic power.

462. STUART ENGLAND, 1603-1714. (3) Treatment in depth of the socio-economic and political phases involved in the Civil War, Restoration and Glorious Revolution, and International and Colonial involvement.

491. TUTORIAL IN HISTORY. (2) Prerequisite: consent of department. Required of all history majors. Seminar in historical method, bibliography, and purpose of historical writing. A major research paper under the direction of a staff member.

492. SEMINAR IN HISTORY. (3) Prerequisite: consent of department. An intensive examination of a subject in History to be offered as special circumstances require.

HUMANITIES

350. TOPICS IN HUMANITIES. (3) (May be repeated for credit with consent of the student's major department.) Prerequisite: Junior standing and consent of the sponsoring departments. Topics chosen from the general area of the humanities in order to demonstrate relationships and inter-disciplinary influences.

MATHEMATICS

Professors Wahab, Chairman; Cone, Goodrum; Associate Professors E. Markham, Schell; Assistant Professors Artiaga, Embry, Fuller, T. Markham, Nixon, Stewart, Teague, Instructors Davis, King, Marshall, Wright, Bernstein (part-time), Leiva (part-time)

A major in mathematics for the B.A. degree consists of 27 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department.

A major in mathematics for the B.S. degree consists of 40 semester hours of mathematics courses numbered above 104 and approved by the department. Related work consists of 18 semester hours approved by the department. For the B.S. degree, a mathematics major must choose French, German, or Russian to satisfy the language requirement.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103 and 104, unless exempted by the department. It is recommended that a prospective freshman major enroll in these courses during the summer session immediately preceding his freshman year.

The mathematics courses are adequate to serve students with many degree objectives. Some of these with appropriate courses follow:

A. Graduate work in Mathematics.
   Essential: 141, 142, 242, 343, 344, 363, 364, 481, a B.S. in Mathematics.
   Desirable: 241, 361, 443, 381.

B. Emphasis in Applied Mathematics.
   Essential: 141, 142, 241, 242, 371, 372, 237, 322.
   Desirable: 323, 343, 361, 311, 363.

C. Emphasis in Statistics.
   Essential: 141, 142, 221, 237, 223, 322, 323.
   Desirable: 333, 334, 311, 312.

D. Emphasis in Computer Science.
   Essential: 233, 235, 237, 333, 334, 141, 142, 221, 222.
   Desirable: 241, 311 223, 322.

E. Elementary Education.
   Essential: 104, 141, 142, 403, one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a B.A. in Mathematics.
   Desirable: 221, 222, 237, 241, 242.

F. Secondary Education.
   Essential: 104; 141; 142; one of 102, 103, 241, 361; one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a minimum of 30 semester hours in mathematics.
   Desirable: 221, 222, 237, 242.

Combinations of the above will permit a student to achieve other degree objectives.

The B.S. Degree in Mathematics, Curriculum Outline

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 141	4	Mathematics 142	4
Foreign Language 201	3	Foreign Language 202	3
Science	4	Science	4
	17		17

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 2xx	3
Foreign Language 301	3	Mathematics	3
Science	4	Mathematics 242	4
Mathematics 241	4	Science	4
Social Science	3	Social Science	3
	17		17

JUNIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	6
Social Science	3	Humanities	3
Humanities	3	Related Work	6-8
Related Work	3-4		15-17
	15-16		

SENIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	3-6
Related Work	6-8	Related Work	3-6
	12-14	Electives	3-9
			12-15

The B.A. Degree in Mathematics, Curriculum Outline

The curriculum outline for the B.A. degree is essentially the same as for the B.S. degree, except that up to 13 semester hours of mathematics courses may be replaced by an equal number of semester hours of electives. However, the maximum number of hours permitted from a single department to count toward a B.A. degree is 36 semester hours.

101. ELEMENTARY ALGEBRA. (3) Sets, logic, probability and an introduction to computers.

102. ELEMENTARY ANALYSIS. (3) Prerequisite: Mathematics 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to the social and life sciences.

103. ALGEBRA. (3) Sets, logic, an axiomatic treatment of the real numbers as a complete ordered field, solution sets of equations and inequalities, binary relations, functions and binary operations.

104. VECTOR ALGEBRA. (3) Prerequisite or corequisite: Mathematics 103. Algebra and geometry of vectors, a vector approach to trigonometry, vector descriptions of lines and planes, and matrix representation of linear transformations.

132. INTRODUCTION TO COMPUTING TECHNIQUES: (1) Prerequisite: Mathematics 101 or 103. A study of digital computing systems, programming of a digital computer, and the solution of problems on a digital computer. Two laboratory hours per week.

141. INTRODUCTORY ANALYSIS I. (4) Prerequisite: Mathematics 103 and 104, with a grade of C or better in each. (If a student can show to the satisfaction of the Mathematics Department that his knowledge of Mathematics 103 and 104 is adequate, he may be exempted from taking one or both of these courses as prerequisites for Mathematics 141.) Mathematics 141 includes linear spaces and transformations, the differential calculus of real-valued functions and the differential calculus of vector functions. Three lecture hours and two problem hours per week.

142. INTRODUCTORY ANALYSIS II. (4) Prerequisite: Mathematics 141 with a grade of C or better. The integral calculus of vector functions, including the Riemann integral on the real line. Three lecture hours and two problem hours per week.

221. INTRODUCTION TO PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 102 or consent of the Department. The first course of a two semester sequence of a modern introduction to the mathematical theory of probability and statistics with applications.

222. INTRODUCTION TO PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 221. A continuation of Mathematics 221.

223. INTRODUCTION TO PROBABILITY AND STATISTICS III. (3) Prerequisites: Mathematics 141 or consent of the department. An introduction to the linear model as a foundation for least squares estimation and analysis of variance.

233. DIGITAL COMPUTING TECHNIQUES A. (1) Prerequisites: Mathematics 132, Mathematics 102 or 141 or consent of the department. A study of advanced programming techniques that will extend the student's programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of business administration and the behavioral sciences. Two laboratory hours per week.

235. DIGITAL COMPUTING TECHNIQUES B. (1) Prerequisites: Mathematics 132 and 141, or consent of department. A study of advanced programming techniques that will extend the students programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of the physical sciences. Two laboratory hours per week.

237. INTRODUCTION TO ALGORITHMIC PROCESSES: (3) Prerequisite or Corequisite: Mathematics 132 or consent of the department. The language, notation, and computational methods necessary for a study of algorithms. The application of a specific procedure-oriented language to solve numerical and non-numerical problems using a digital computer.

241. INTRODUCTORY ANALYSIS III. (4) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the Mathematics Department. Introduction to systems of ordinary differential equations and the requisite topics in analysis needed for their study including infinite series. Three lecture hours and two problem hours per week.

242. INTRODUCTORY ANALYSIS IV. (4) Prerequisite: Mathematics 142, with a grade of C or better, or consent of department. Analytic function theory, complex integration, sequences, series, and residue calculus with applications to Fourier and Laplace transforms and other areas, as time permits. Three lecture hours and two problem hours per week.

311. OPERATIONS RESEARCH I. (3) Prerequisite: Mathematics 222 or consent of the department. The first course of a two semester sequence, including matrix algebra, convex sets, linear programming, and the theory of games.

312. OPERATIONS RESEARCH II. (3) Prerequisite: Mathematics 311. A continuation of Mathematics 311.

322. PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the department. A first course in a two-semester sequence including continuous probability distributions, random variables, limit theorems, stochastic processes, estimation, and hypothesis testing.

323. PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 322. A continuation of Mathematics 322.

333. COMPUTER ORGANIZATION AND PROGRAMMING. (3) Prerequisites: Mathematics 237 or consent of department. Computer structures; machine representation of information; computer control, instruction codes and operations; sub-routines, linkages, macros, interpretive and assembly systems. Two lecture hours and two laboratory hours per week.

334. INFORMATION STRUCTURES. (3) Prerequisite: Mathematics 333 or consent of department. Description of a data base and its structure; concepts of records, files, trees, and lists; sorting, searching and merging of information files; referencing and cross-referencing of files based on list processing. Two lecture hours and two laboratory hours per week.

343. ANALYSIS I. (3) Prerequisite: Mathematics 242 with a grade of C or better, or consent of the department. The first course of a three-semester sequence in the analysis of real-valued functions. Mathematics 343 will include the following topics: limits, continuity, uniform convergence, uniform continuity and Riemann and Lebesque integration.

344. ANALYSIS II. (3) Prerequisite: Mathematics 343. A continuation of Mathematics 343.

350. TOPICS IN MATHEMATICS. (Two or three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as set theory, linear algebra and geometry, and probability. This course is designed to serve particular needs, not served by other departmental offerings, such as the needs of the National Science Foundation Institute for Teachers.

361. LINEAR ALGEBRA. (3) Prerequisite: Mathematics 142 or consent of the department. Algebra and geometry of vector spaces, linear transformations and matrices, linear equations and characteristic values.

362. NUMBER THEORY. (3) Prerequisite: consent of the department. Introductory topics from the theory of rational and algebraic integers.

363. MODERN ALGEBRA I. (3) Prerequisite: Mathematics 242 or consent of the department. The first course of a two semester sequence covering topics in group theory, rings and ideals, fields, and Galois theory.

364. MODERN ALGEBRA II. (3) Prerequisite: Mathematics 363. A continuation of Mathematics 363.

371. APPLIED MATHEMATICS I. (3) Prerequisite: Mathematics 241 and Mathematics 242, each with a grade of C or better, or consent of the department. The first course of a two-semester sequence in applied mathematics including the following topics: calculus of variations, boundary value problems, separation of variables, Green's functions, integral equations and Fourier transforms.

372. APPLIED MATHEMATICS II. (3) Prerequisite: Mathematics 371. A continuation of Mathematics 371.

381. FUNDAMENTAL CONCEPTS OF GEOMETRY. (3) Prerequisite: Mathematics 142 or consent of the department.

Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

391. SEMINAR. (2) Prerequisite: consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

392. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 391.

403. ARITHMETIC IN THE SCHOOL. (3) Prerequisite: Mathematics 102 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration, and the number line appropriate for each grade. (Does not count toward a major in mathematics.)

409. HISTORY OF MATHEMATICAL THOUGHT. (3) Prerequisite: Mathematics 102 or 141. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. (Does not count toward a major in mathematics.)

443. ANALYSIS III. (3) Prerequisite: Mathematics 344. A continuation of Mathematics 344.

450. SELECTED TOPICS IN MATHEMATICS. (Two or three semester hours credit, but may be repeated for credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as topology, differential geometry, complex analysis, applied mathematics, or modern algebra.

481. INTRODUCTION TO TOPOLOGY. (3) Mathematics 242 or consent of the department. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axiom, compactness and connectedness.

491. SEMINAR. (2) Prerequisite: consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 491.

NURSING

Associate Professor Brocker, Chairman; Assistant Professor Caddell; Instructors Lowder, Smith

For the degree of Bachelor of Science with a major in Nursing, 46 semester hours in Nursing and 15 to 19 semester hours in related work are required. A total of 130 semester hours is required.

All clinical courses are taught in related hospitals and other community health agencies and provide the laboratory setting for the application of theoretical content in actual patient and/or family situations.

It is recommended that Chemistry, Biology, and a foreign language be taken in high school in preparation for the Nursing program.

Course of Study for a Bachelor of Science Degree with a Major in Nursing

FRESHMAN YEAR

	Sem. Hrs.		Sem. Hrs.
English 101	3	English 102	3
Mathematics 101	3	Mathematics 102	3
Chemistry 101	4	Chemistry 102	4
Biology 101	4	Nursing 102	3
Foreign Language 201	3	Foreign Language 202	3
	17		16

SOPHOMORE YEAR

	Sem. Hrs.		Sem. Hrs.
Biology 204	4	Biology 203	4
Sociology 201	3	Psychology 201	4
Foreign Language 300	3	Nursing 204	2
English 201	3	English 202, 203, or 204	3
Nursing 201	4	Nursing 202	4
	17		17

JUNIOR YEAR

	Sem. Hrs.		Sem. Hrs.
History 101	3	History 102	3
Elective (related work)	3	Sociology 303	3
Elective (Humanities)	3	Psychology 202	3
Nursing 301	5	Nursing 302	5
Elective (related work)	3	Elective (related work)	3
	17		17

SENIOR YEAR

	Sem. Hrs.		Sem. Hrs.
Psychology 307	3	Elective (Humanities)	3
Nursing 401	5	Nursing 402	5
Nursing 403	5	Nursing 404	4
Nursing 491	2	Nursing 492	2
	15		14

102. ECOLOGY OF MAN I. (3) The focus of this course is directed toward understanding the relationship of the ill person to his family and community. Major health problems and facilities provided by society for meeting health needs will be included in the content. Lectures, field trips.

201. FUNDAMENTALS OF NURSING. (4) Prerequisite or corequisite: Nursing 102. Study of the basic concepts and principles essential for the nursing care of adults and children. Emphasis is placed on the correlation of principles of nursing with concepts of behavioral and natural sciences. Two hours lecture, six hours laboratory assignment in patient care areas.

202. FUNDAMENTALS OF NURSING II. (4) A continuation of Nursing 201.

204. ECOLOGY OF MAN II. (2) Prerequisite: Nursing 102 or consent of the department. A laboratory course. Students will work with carefully selected families, performing appropriate nursing functions. Individual and group study. Field work.

301. FUNDAMENTALS OF NURSING III. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and meet the needs of adults and children undergoing medical therapy or surgical intervention for acute and long term illness.

302. FUNDAMENTALS OF NURSING IV. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and to meet nursing needs of mothers (obstetric nursing), the new born, and children.

401. FUNDAMENTALS IN NURSING V. (Psychiatric Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. A study of fundamental principles and techniques of nursing skills necessary for working with patients with emotional disorders. Emphasis is placed on nurse-patient relationships leading to development in interpersonal skills which result in therapeutic changes in behavior.

402. FUNDAMENTALS IN NURSING VI. (Advanced Patient Care). (5) Prerequisites: 200 and 300 level courses in nursing. This course will provide opportunities to increase knowledge and skill in the care of critically ill patients in the Intensive Care Units.

403. FUNDAMENTALS OF NURSING VII. (Public Health Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. Considers concepts and philosophy of public health nursing; functions and responsibilities of the public health nurse in the community. Laboratory experience in community health nursing and public health agency settings.

404. FUNDAMENTALS OF NURSING VIII (Leadership in Nursing). (4) Prerequisites: 200 and 300 level courses in nursing. Study of principles of administration in nursing in hos-

pitals and public health agencies; focuses on management of nursing care of patients. Opportunities for participation in management functions will be provided in the hospital.

491. SEMINAR IN NURSING I. (2) Corequisites 401 or 402 and 404. Intellectual inspection and identification of common concepts in clinical nursing with the intent to broaden and deepen the understanding of specialties of nursing.

492. SEMINAR IN NURSING II. (2) Corequisites: 401 and 403 or 402 and 404. Dialogues in philosophy of nursing.

PHILOSOPHY

Assistant Professors Witherspoon, Chairman; Corkey, Fishman; Instructor Byerly

201. INTRODUCTION TO PHILOSOPHY. (3) An introduction to some of the basic concepts and problems of philosophy. Typical problems such as freedom and determinism, mind-body interaction, the status of moral judgments, and the problem of perception. Readings from the works of representative philosophers, both classical and contemporary.

205. INTRODUCTION TO LOGIC AND SCIENTIFIC METHOD. (3) An introduction to the study of the general principles of deductive logic, both classical and symbolic, and an introduction to the nature of inductive reasoning and scientific explanation.

301. ETHICS. (3) A study of the development of ethical thought in ancient and modern times, with special references to present day ethical problems. Readings selected from classical and contemporary sources.

302. ANCIENT PHILOSOPHY. (3) Prerequisite: Philosophy 201 or junior standing. An inquiry into the history of Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, the Epicureans, Stoics, Skeptics, and Neoplatonists.

303. MODERN PHILOSOPHY FROM DESCARTES TO KANT. (3) Prerequisite: Philosophy 201 or junior standing. An inquiry into the development of modern philosophic and scientific thought. Readings selected from representative works in the seventeenth to the nineteenth centuries.

304. 19TH CENTURY PHILOSOPHY. (3) Prerequisite: Philosophy 302 or 303. Readings of selected works from major 19th century philosophers: Fichte, Hegel, Schopenhauer, Marx, Compte, Mill, Kierkegaard, Nietzsche.

305. CONTEMPORARY PHILOSOPHY. (3) Prerequisite: Philosophy 201. A study of the main movements and problems of contemporary philosophy: pragmatism, logical positivism, linguistic analysis, existentialism.

325. AESTHETICS. (3) Prerequisite: Philosophy 201 or junior standing. A study of the major theories of art, including readings from Aristotle, Kant, Nietzsche, Santayana, Collingwood, Croce, and Dewey. Emphasis is on the following categories: expression, criticism, the work of art, the creative process.

350. TOPICS. (3) May be repeated for additional credit with the approval of the department. Prerequisite: Consent of the department. Topics chosen from specific areas in philosophy such as symbolic logic, philosophy of science, freedom and determinism, philosophy in literature, detailed study of significant philosophic movements, or detailed study of the works of individual philosophers.

365. THEORY OF KNOWLEDGE. (3) Prerequisite: Philosophy 201. An analysis of the concepts of meaning, belief, knowledge, truth, and discussion of the analytic-synthetic distinction. Readings from historical and contemporary sources.

375. METAPHYSICS. (3) Prerequisite: Philosophy 201. An investigation of the history of metaphysics, focusing on the concept of experience. Authors to be discussed include Aristotle, Hume, Lewis, Hegel, James, Peirce, Dewey, and Whitehead.

401. PHILOSOPHY OF RELIGION. (3) Prerequisites: Philosophy 201 and junior standing. A discussion of the philosophical implications of religious experience. The definitions, development, and diverse forms of the problems of belief and reason in modern thought.

402. PHILOSOPHY OF THE EAST. (3) Prerequisite: Six hours of philosophy. A survey of thought in the East from ancient to modern times. Special emphasis on the philosophical concepts of Hinduism, Buddhism, Confucianism, and Taoism.

425. AMERICAN PHILOSOPHY. (3) Prerequisite: Philosophy 201, or junior standing, or consent of the instructor. A survey of European philosophic movements which had counterparts in American thought, leading to distinctively American

Pragmatism, Realism, and Humanism. Readings from contemporary American philosophers.

445. PHILOSOPHY OF MIND. (3) Prerequisite: Philosophy 201. A study of the conceptual issues in the mind-body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination, and emotion.

491. SEMINAR. (2) Prerequisite: Consent of the department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results.

492. SEMINAR. (2) Prerequisite: Consent of the department. A continuation of Philosophy 491.

PHYSICS

Assistant Professors Vermillion, Acting Chairman; Mayes, Oberhofer

101. INTRODUCTORY PHYSICS I. (4) Prerequisite or corequisite: Mathematics 101 or Mathematics 103. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g., relativity, quantum mechanics, elementary particles) in order to illustrate the logical structure of modern science. Three lecture hours and one three hour laboratory each week.

102. INTRODUCTORY PHYSICS II. (4) Prerequisite: Physics 101. A continuation of Physics 101. Three lecture hours and one three hour laboratory each week.

221. PARTICLE DYNAMICS. (3) Corequisite: Mathematics 142. Kinemetics and dynamics of particles. The gravitational interaction with an introduction to the associated vector and scalar fields.

231. ELECTROMAGNETIC THEORY I. (3) Prerequisite: Physics 221. Corequisite: Mathematics 241. The first course of a three-semester sequence treating free-space and matter electrodynamics, potential theory, electromagnetic energy relations, Maxwell's equations, electromagnetic waves, and other selected topics in electromagnetic theory.

241. WAVES AND OSCILLATIONS. (3) Prerequisite: Physics 231. General wave phenomena. Interference. Diffraction. Polarization. Applications from geometrical and physical optics, coupled masses, vibrating string.

251. EXPERIMENTAL PHYSICS I. (1) Corequisite: Physics 221. The first course of a six-semester laboratory sequence developing toward open-ended experiments designed to illustrate physical principles, to develop experimental technique, and to encourage individual investigation by the student. One three hour laboratory each week.

252 EXPERIMENTAL PHYSICS II. (1) Prerequisite: Physics 251. A continuation of Physics 251. One three hour laboratory each week.

321. CLASSICAL MECHANICS I. (3) Prerequisite: Physics 221. The first course of a two-semester sequence treating particle dynamics (Newtonian and Relativistic), small oscillations, rigid bodies, Lagrange's equations, Hamilton's equations, Hamilton's principle, and other selected topics.

331. ELECTROMAGNETIC THEORY II. (3) Prerequisite: Physics 231. Continuation of Physics 231.

341. QUANTUM PHYSICS I. (3) Prerequisite: Physics 241. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of atoms, molecules, and solids.

345. STATISTICAL PHYSICS. (3) Prerequisite: Physics 321 or consent of the Physics Department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics.

350. TOPICS IN PHYSICS. (One to three semester hours credit. May be repeated with approval of the Physics Department.) Prerequisite: consent of the Physics Department. Used to comply with requests for special topics which are introductory in nature.

351. EXPERIMENTAL PHYSICS III. (2) Prerequisite: Physics 252. Continuation of Physics 252. Six hours of laboratory each week.

352. EXPERIMENTAL PHYSICS IV. (2) Prerequisite: Physics 351. Continuation of Physics 351. Six hours of laboratory each week.

360. SEMINAR I. (1) Prerequisite: Physics 231. The first course in a two-semester sequence which is intended to introduce the undergraduate to specific topics (e.g., recent developments in physics research, historical review of specific areas of physics, etc.) which might otherwise be omitted from the curriculum. At times students will be expected to lead the discussion. In most cases a term paper on a subject agreed upon by the student and instructor will be required.

361. SEMINAR II. (1) Prerequisite: Physics 360. Continuation of Physics 360.

421. CLASSICAL MECHANICS II. (3) Prerequisite: Physics 321 and Mathematics 241 or consent of Physics Department. Continuation of Physics 321.

431. ELECTROMAGNETIC THEORY III. (3) Prerequisite: Physics 331 or consent of the Physics Department. Continuation of Physics 331.

441. QUANTUM PHYSICS II. (3) Prerequisite: Physics 341. Continuation of Physics 341 with selected applications from atomic, molecular, and nuclear physics.

450. SELECTED TOPICS IN PHYSICS. (One to three semester hours credit. May be repeated with approval of the Physics Department.) Prerequisite: Consent of Physics Department. Used to comply with requests for more advanced special topics.

451. EXPERIMENTAL PHYSICS V. (2) Prerequisite: Physics 352. Continuation of Physics 352. Six hours of laboratory each week.

452. EXPERIMENTAL PHYSICS VI. (2) Prerequisite: Physics 451. Continuation of Physics 451. Six hours of laboratory each week.

POLITICAL SCIENCE

Professor Rieke, Chairman; Associate Professor Starner; Assistant Professor Jamgotch; Instructors Biglow, Brenner

A major in Political Science leading to the B.A. degree consists of 27 semester hours of political science, among which must be included Introduction to Politics and Government (200), Introduction to American Politics (201), and Senior Seminar (490). Related work consists of 18 semester hours.

Political Science 200 or 201 is a prerequisite for all 300 and 400 level courses in Political Science.

The offerings including introductory courses are divided into five major areas as follows:

1. American Politics: Political Science 201, 302, 303, 304, 310, 320, 325
2. Comparative Politics: Political Science 200, 330, 336, 340, 345, 348, 355
3. International Relations: Political Science 370, 375, 380, 385, 390

4. Political Thought: Political Science 400, 401, 410
5. Political Science as a Discipline: Political Science 450, 490, 495

200. INTRODUCTION TO COMPARATIVE POLITICS AND GOVERNMENT. (3) Political institutions in the contemporary world. An introduction to the concepts of government, the phenomena of conflict, power, order, and authority implicit in the term "government," as well as the various political systems and structures which men have established.

201. INTRODUCTION TO AMERICAN POLITICS. (3) Role of the President, Congress, Supreme Court and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis upon political culture, the electoral process, interest groups, political communication, and the international commitments of the United States.

AMERICAN POLITICS

302. POLITICS, POLITICAL PARTIES, AND PRESSURE GROUPS. (3) Analysis of the structure, role, and techniques of political parties in the United States. Also the evolution, origin, strategy, and tactics of interest groups in the American political system.

303. VOTING BEHAVIOR AND PUBLIC OPINION. (3) The nature of public opinion and propaganda in modern society. Analysis of the significant findings concerning the social, psychological and political determinants of voting. The relationship between public opinion and the making of public policy.

304. THE PRESIDENT AND CONGRESS. (3) The role of the President and Congress in the formation of policy in the American political system.

310. THE SUPREME COURT. (3) Analysis of the content of historic Supreme Court decisions as well as the role of the Court in the American political system.

320. PUBLIC ADMINISTRATION. (3) An institutional and behavioral analysis of the administrative process. Includes: the rise of the administrative state, its impact on administrative theory and practice, and the nature of the new public bureaucracy; the tasks of the administrator; the political environment of administration; organization, personnel, and finance; the regulatory function and administrative law; and administrative responsibility.

325. STATE AND URBAN POLITICS. (3) The states in the federal system: their history, constitutions, governmental structure, and relations with other units of government; the problems of urban areas. Politics and policy formation at each level of government.

COMPARATIVE POLITICS AND AREA STUDIES

330. CONSTITUTIONAL DEMOCRACY AND AUTHORITARIANISM. (3) Comparative study of the political institutions, processes, and problems of selected democracies and dictatorships, including fascist and totalitarian variants. The conditions that facilitate the origin and development of these forms.

336. THE NATURE OF POLITICAL CHANGE. (3) Comparative study of the nature and causes of political change and stability with reference to the experiences of the United States, some European nations, and selected developing nations. Problems of modernization, impact of revolutions, processes of reform, nation-building, and the influence of social and economic dynamics upon political order.

340. POLITICAL SYSTEMS OF WESTERN EUROPE. (3) Comparative analysis of selected West European governments including Great Britain, France, Germany, and Italy.

345. GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3) The origins of Bolshevism and the substance and role of Marxist-Leninist ideology. The structure and functions of the Community Party of the Soviet Union (CPSU). The principles of Soviet politics and the instruments of rule. The Soviet political system in transition and its relationship to world communism.

348. GOVERNMENT AND POLITICS OF LATIN AMERICA. (3) Constitutionalism, governmental structures, and political processes in Latin America. Problems of development, modernization, and change. Inter-American relations and Latin American world affairs.

355. GOVERNMENT AND POLITICS OF EAST, SOUTHEAST, AND SOUTH ASIA. (3) The structure and evolution of political institutions in China, Japan, Korea, India, and other selected nations. Emphasis upon such topics as nationalism, political modernization, ideology, socio-economic influences, and the role of Asian nations in world politics.

INTERNATIONAL RELATIONS

370. AN INTRODUCTION TO INTERNATIONAL POLITICS AND INSTITUTIONS. (3) Analysis of politics among nations: material and psychological sources of national power, the role

of law, force, and diplomacy in world politics, problems of peace and disarmament, and international organizations.

375. AMERICAN FOREIGN POLICY. (3) The problem of defining the objectives of foreign policy in the United States and of selecting the means for achieving them; past, present, and suggested American strategies in world politics. Comparisons will be made with the processes and issues in other nations.

380. SOVIET FOREIGN POLICY. (3) The concepts, content, and evolution of Soviet foreign relations, with emphasis upon change and continuity in Russian and Soviet policies. Contemporary problems of Soviet diplomacy with other world powers and with the Marxist-Leninist nations of the Communist international system.

385. POLITICAL FOUNDATIONS OF INTERNATIONAL ORDER. (3) The structure, processes, and problems of general and regional international organizations, and the origins and contemporary role of international law.

390. PROBLEMS OF DEFENSE AND NATIONAL SECURITY POLICY. (3) Investigates major concepts of war and the problems of arms control, escalation, and the proliferation of nuclear weapons. Examines trends and conditions of international conflict, technological change, and domestic political environments as they relate to defense and national security.

POLITICAL THOUGHT

400. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from Plato to the seventeenth century.

401. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from the seventeenth century to the present.

410. AMERICAN POLITICAL THOUGHT. (3) An analysis of the ideas underlying government and politics in the United States.

POLITICAL SCIENCE AS A DISCIPLINE

450. SELECTED TOPICS IN POLITICAL SCIENCE. (3) An intensive study of a topic in political science. Topics chosen may vary from semester to semester. A student may take more than one course under this number.

490. SENIOR SEMINAR: THE SCOPE OF MODERN POLITICAL SCIENCE. (3) A course in the "how" and "why" of

the discipline rather than the "what." The staff in Political Science will lead the seminar in the consideration of: (1) major works in Political Science (books and scholarly articles), (2) some more important theories currently guiding research in the discipline, and (3) the present posture or direction of the discipline.

495. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Political Science 490, Mathematics 222. (This course is also listed as Sociology 410.) Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data. Recommended for students considering graduate work in the social sciences.

PRE-LAW STUDENTS

Students majoring in Political Science who plan to go to Law School are advised to take the following courses.

(1) Political Science 310
(2) English 305
(3) Speech 101
(4) Philosophy 205
(5) Business Administration 201, 202
(6) History 361, 362

PSYCHOLOGY

Professor Diamant, Acting Chairman; Associate Professor Schultz; Assistant Professors Simono, Sohn; Instructor Greeson

A major in Psychology leading to the B.A. degree consists of 29 semester hours of Psychology, including General Psychology (201), Experimental Psychology (341), or Experimental Psychology (342) and Seminar (491 or 492).

Psychology majors are also required to take Math 221-222, Probability and Statistics, and a minimum of three courses in areas A and B below. Both areas must be represented in the selection.

A.		B.	
	Anthropology		Biology
	Sociology		Physics
	Philosophy		Chemistry

A total of 15 semester hours in related work, to be arranged with the Department of Psychology, and which may include courses from areas A and B, is to be taken by majors. Twenty-one hours

of Education may, if desired by a student taking work in Elementary Education, be substituted for the three courses drawn from A and B.

1st Semester		*2nd Semester*	
English 101	3	English 102	3
History 101	3	History 102	3
Mathematics 101	3	Mathematics 102	3
Natural Science	4	Natural Science	4
Foreign Language	3	Foreign Language	3
	16		16
3rd Semester		*4th Semester*	
English 201	3	English 202	3
Foreign Language	3	Natural Science	4
Psychology 201	4	Mathematics 222	3
Mathematics 221	3	Psychology Elective	3
Elective	3	Elective	3
	16		16
5th Semester		*6th Semester*	
Experimental Psychology 341 or 342	4	Psychology Electives	6
Related Work	6	Related Work	3
Psychology Elective	3	Electives	6
Electives	6		15
	19		
7th Semester		*8th Semester*	
Psychology Seminar 491	3	Psychology Electives	3
Related Work	3	Related Work	3
Psychology Elective	3	Electives	9
Electives	6		15
	15		

201. GENERAL PSYCHOLOGY. (4) Survey of general psychology as a behavioral science. Three lecture hours and one laboratory period of two hours a week.

202. EDUCATIONAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The psychology of learning; problems related to the instructional processes. Case study required.

203. PSYCHOLOGY OF ADJUSTMENT. (3) Prerequisite: Psychology 201. The study of the process of adjustment. Primary consideration given to motivation, frustration and conflict, adjustment mechanisms, and psychotherapy.

301. CHILD PSYCHOLOGY. (3) Prerequisite: Psychology 201. The instincts, emotions, and general tendencies of children up to the age of twelve. Remedial measures suggested in dealing with early child tendencies which might lead to serious school and personality difficulties. Special study of at least one child required for each student.

302. ADOLESCENT PSYCHOLOGY. (3) Prerequisite: Psychology 201. Developmental and psychological characteristics of adolescence. Research methods and familiarity in case study emphasized. School and personality problems studied.

303. SOCIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The social behavior of man. Man's behavior in relation to other individuals, groups, and products of culture, both material and nonmaterial. Group dynamics, leadership, the nature of prejudice, the effects of mass communication, public opinion are some of the topics treated.

305. PSYCHOLOGY OF PERSONALITY. (3) Prerequisite: Psychology 201. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, and perceptual viewpoints in the light of contemporary research.

307. ABNORMAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

308. LEARNING THEORY. (3) Prerequisite: Psychology 201. A survey of learning theories including the major associationist, cognitive, and mathematical positions. A comparative approach is taken whenever possible.

341. EXPERIMENTAL PSYCHOLOGY: LEARNING AND MOTIVATION. (4) Prerequisites: Psychology 201 and Math 222. History of the experimental approach to motivation and learning theory, current issues and controversy. Emphasis on laboratory problems. Three lecture hours and one laboratory period of two hours a week.

342. EXPERIMENTAL PSYCHOLOGY: SENSATION AND PERCEPTION. (4) Prerequisites: Psychology 201 and Math 222. Survey of literature on sensation and perception. Introduction to problems and methods in research in sensation and perception. Three lecture hours and one laboratory period of two hours a week.

351. PHYSIOLOGICAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The relationship of the physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

361. HISTORY AND SYSTEMS OF PSYCHOLOGY. (3) Prerequisite: Psychology 201. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, psychoanalytic and behaviorist theory. Evaluation of current existential influence.

371. INDUSTRIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. Psychological theories as applied to industry and business. Studies in human engineering and personnel problems.

450. TESTS AND MEASUREMENTS. (3) Prerequisite: Psychology 201. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration, and application of group tests. Individual tests such as Stanford Binet, WISC, and WAIS will be reviewed.

421. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3) Prerequisites: Psychology 201 and 301. Assessing the exceptional child. Emphasis on current research in several diagnostic categories.

491. SEMINAR. (3) Admission by consent of department. Intensive reading and discussion in selected areas. Issues of current importance; social, scientific, and philosophical implications.

492. SEMINAR. (3) Admission by consent of department. A continuation of 491.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology, or (2) major in sociology with related work in psychology (see p. 128-129). Whichever major is chosen, care should be taken to include the following courses: Psychology 303 (Social Psychology), Psychology 305 (Psychology of Personality), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.

RELIGION

Assistant Professors Witherspoon, Chairman; Corkey

201. SURVEY OF THE OLD TESTAMENT. (3) An introduction to the literary and historical values of the Old Testament literature. Emphasis upon the background, purpose, and content of the writings in English translations.

202. SURVEY OF THE NEW TESTAMENT. (3) New Testament literature in its historic and contemporary background. Emphasis upon the content and purpose of the text in English translations.

203. COMPARATIVE RELIGIONS. (3) A survey of man's religious consciousness from the earliest intimations of its awakening to the development of the world's living religions today, utilizing modern research among contemporary primitive cultures and translations of the primary sources of the world's great scriptures.

301. THE LIFE AND TEACHINGS OF JESUS. (3) Prerequisite: Religion 202. A study of the Gospels for an understanding of the life of Jesus and the religion he taught.

303. THE HEBREW PROPHETS. (3) Prerequisite: Religion 201. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth and sixth centuries B.C. Emphasis will be placed on the contributions of the prophets to their own day and their significance for religious thought today.

405. THEOLOGY AND CONTEMPORARY LITERATURE. (3) Prerequisite: Open to seniors only with the consent of the department. A discussion of the theological issues raised by contemporary writers—both Christian and non-Christian. Consideration will be given to the writings of such authors as Camus, Eliot, Greene, Miller, Salinger, Steinbeck, and others.

406. RELIGION IN AMERICAN LIFE. (3) Prerequisite: Junior standing and the consent of the instructor. An inquiry into the role religion has played in the development of American life with particular emphasis on the late nineteenth and twentieth centuries.

SOCIOLOGY

Instructor Harris, Acting Chairman; Assistant Professor Goodnight

A major in sociology leading to the B.A. degree consists of 27 semester hours of sociology, including Soc. 201 (General Sociology), Soc. 401 (Sociological Theory), Soc. 410 (Research Methods in Social Science), and Soc. 491 (Seminar for Majors in Sociology). Psychology 303 may be substituted for a Sociology course among the 27 required semester hours in Sociology for majors only. Related work consists of 21 semester hours in any two of the following fields: economics, history, mathematics, political science, psychology. Math. 221, 222 (Introduction to Probability and Statistics I, II) are required of majors in sociology.

201. GENERAL SOCIOLOGY. (3) Survey of the field of sociology to cover such topics as: social norms and values, status and role, social stratification, socialization, crowds and publics, formal and informal groups, urban communities, population, social institutions.

203. GENERAL ANTHROPOLOGY. (3) Survey of the field of anthropology: physical anthropology, prehistoric archeology, ethnology, culture theory.

270. INDUSTRIAL SOCIOLOGY (3) Prerequisite: consent of department. The application of sociological concepts and theories to the analysis of social relationships in business and industry. A study of relationships of industry to the community and society.

302. SOCIAL PROBLEMS. (3) Prerequisite: Sociology 201. Sociological analysis of crime and delinquency, alcoholism, drug addiction, mental disorders, race relations, and problems of population.

303. SOCIOLOGY OF THE FAMILY. (3) Prerequisite: Sociology 201. Analysis of the structure and functioning of the American family and of such related institutional patterns as dating, courtship, marriage, and divorce.

310. AMERICAN MINORITY GROUPS. (3) Prerequisite: Sociology 201. Sociological analysis of the relations between minority and dominant groups in America, with special attention paid to such American minorities as immigrant groups, Mexicans, Puerto Ricans, Orientals, Catholics, Jews, Indians, and Negroes.

318. SOCIAL CONTROL. (3) Prerequisite: Sociology 201 or consent of department. The relation of social norms to conforming and deviant behavior with emphasis on the role of the small "status group" in behavioral control. Special attention is given to a study of public opinion and propaganda as forces in social control.

320. URBAN SOCIOLOGY. (3) Prerequisite: Sociology 201. Origin and development of cities; ecological and social structure of city and region; nature and functioning of urban institutions.

323. COMMUNITY ORGANIZATION OF SOCIAL SERVICES. (3) Analysis of the organization of agencies and services for welfare, health, recreation, and other social needs in American communities.

401. SOCIOLOGICAL THEORY. (3) Prerequisite: Sociology 201. Background and contemporary expression of systematic theories of social organization, social differentiation, social change, and other social phenomena.

402. CONTEMPORARY SOCIAL INSTITUTIONS. (3) Prerequisite: Sociology 201 or consent of department. Emphasis on trends and changes in contemporary society. Particular attention is directed toward social and cultural change and the impact of technology, etc., upon major social institutions.

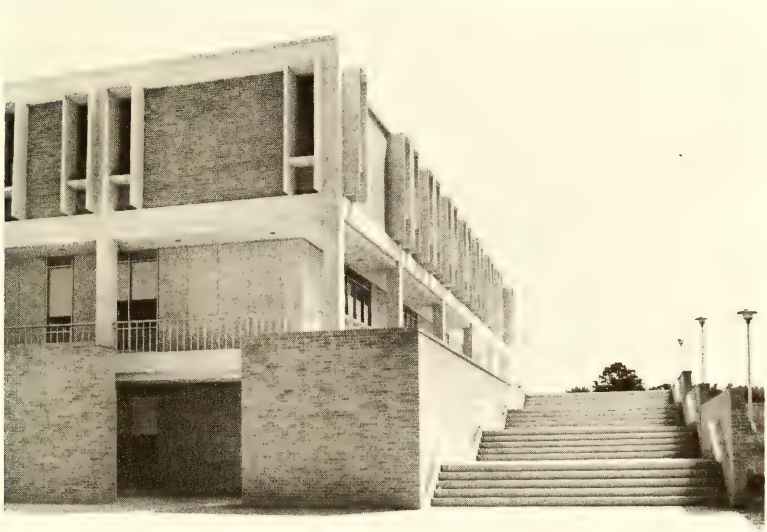
410. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Sociology 201, Math 222. Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data.

491. SEMINAR FOR MAJORS IN SOCIOLOGY. (3) Prerequisite: Permission of department. Independent study, small group discussion and critique.

PRE-SOCIAL WORK CURRICULUM

Students preparing for a career in social work should either (1) major in psychology with related work in sociology (see p. 146) or (2) major in sociology with related work in psychology. Whichever major is chosen, care should be taken to include the following courses: Psychology 305 (Theory of Personality Development), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

This recommended curriculum provides a sound undergraduate preparation for graduate work in social work. It is also the best undergraduate preparation for the infra-professional positions in the field of social work open to those without professional training at the graduate level.



VII. BENEFACTIONS

Musician-in-residence Raul Spivak provides campus and community with an understanding of piano classics

PROFESSORSHIPS

The **Charles H. Stone Fund** was given by Mrs. Stone in memory of her husband, a pioneer in the chemical and dyestuff industry in the South. The grant is dedicated to perpetuating the memory of Mr. Stone and assuring the high quality of chemistry instruction at the University of North Carolina at Charlotte. The net income will be used for the payment of a salary supplement to a distinguished member or members of the chemistry faculty, who will be designated as "Charles H. Stone Professors of Chemistry." Before World War I Mr. Stone was employed by a German chemical company, and later he formed his own company in Charlotte and operated it until 1937 when it was purchased by American Cyanamid Company. Mr. Stone remained active with the company until his retirement in 1947. He died October 20, 1963.

The **Robert Lee Bailey Professorship in History** was established in December, 1965 by Mr. and Mrs. Sanford V. Davenport to honor and reward excellence in teaching by a gift in memory of her brother, Lieutenant Robert Lee Bailey of the 10th Armored Division of the U. S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College, and before the war was associated with Broyhill Furniture Company. Yearly additions will be made to the original gift.

The **Rush S. Dickson Professors of Finance** are being established in memory of the late Rush S. Dickson of Charlotte. The professorships are made possible through the generous gifts and pledges, totaling $100,000, by the Dickson Foundation of Mount Holly and the Rush S. Dickson Family Foundation of Charlotte. Mr. Dickson established both foundations. The net income from the gifts will be used for the payment of a salary supplement or supplements to a distinguished member or members of the Business Administration faculty in the field of finance.

The American Credit Foundation of North Carolina, Inc., is making possible the establishment of the **American Credit Corporation Professors of Business Administration.** The Foundation approved a statement of intent in January, 1967 to contribute $100,000 to be paid over a period of ten years and to be used for the presentation of a salary supplement or supplements to a distinguished member or members of the Business Administration faculty, who will be known as "American Credit Corporation Professors of Business Administration."

THE FOUNDATION OF THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The Foundation of the University of North Carolina at Charlotte was founded in 1960 and has had from its inception the

goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private sources to contribute so that needs unmet, or inadequately provided for through state funds, may be met. The Celanese Corporation of America and the Celanese Fibers Company presented a gift in July, 1963, of a manufacturing plant at Burlington, North Carolina, valued at $1,150,000. The income derived from the rental of this plant is used to supplement the salaries of members of the faculty who teach chemistry, engineering, mathematics, physics and related subjects.

The Foundation of the University of North Carolina at Charlotte has established a program called, "Patrons of Excellence," with the primary initial objective of supplementing the salaries of distinguished faculty members. Under the program, Patrons pledge a minimum of $1,000 a year for a period of 10 years. The first goal of the program, to enlist 100 Founding Patrons of Excellence, has been reached. Now the Foundation is seeking 200 additional Patrons.

VIII. DIRECTORY

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(Four Component Institutions)

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RUDOLPH PATE, B.S., *Assistant to the President*

By the act of the General Assembly of 1931 the University of North Carolina at Chapel Hill, the North Carolina College for Women at Greensboro (renamed The Woman's College of the University of North Carolina), and the North Carolina State College of Agriculture and Engineering at Raleigh were consolidated into The University of North Carolina.

By the act of the General Assembly of 1963, amended in 1965, The University of North Carolina comprises: The University of North Carolina at Chapel Hill, The University of North Carolina at Charlotte, The University of North Carolina at Greensboro, and North Carolina State University at Raleigh.

Each campus of the University has its own faculty and student body, and each is headed by a chancellor as its chief administrative officer. Unified general policy and appropriate allocation of function are effected by a single Board of Trustees and by the President with other administrative officers of the University. Administrative offices are located in Chapel Hill.

Members of the Board of Trustees are elected by the Legislature, and the Governor of North Carolina is chairman ex officio. A current list of members of the Board of Trustees is given below.

The chancellor of each component institution is responsible to the President as the principal executive officer of The University of North Carolina.

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*Deceased July 31, 1967

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THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

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B.A., Georgetown College; M.A., University of North Carolina at Chapel Hill

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B.A., University of North Carolina at Chapel Hill; A.M., Columbia University

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B.A., Michigan State University; M.B.A., Ph.D., University of North Carolina at Chapel Hill

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Louis Diamant, Acting Chairman, Department of Psychology, and Professor of Psychology
B.S., M.A., New York University; Ph.D., Yeshiva University

Thomas Dennison Diamond, Instructor in Biology
B.S., M.A., East Tennessee State University

Thomas David DuBois, Assistant Professor of Chemistry
B.A., McMurry College; M.S., Ph.D., Ohio State University

Frederick Jackson Dunkerley, Jr., Associate Professor of Engineering[1]
B.Sc., Thiel College; M.Sc., D.Sc., Carnegie Institute of Technology

[1] On leave, 1967-68

Dorothy Grace Dunn, Instructor in Business Education
A.B., Marshall College; M.A., George Peabody College for Teachers

Seth Howard Ellis, Associate Professor of English
A.B., University of Delaware; A.M., University of Missouri; Ph.D., University of Southern California

Mary Rodriguez Embry, Assistant Professor of Mathematics
B.S., Southwestern at Memphis; M.A., University of Virginia; Ph.D., University of North Carolina at Chapel Hill

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B.S., M.S., University of South Carolina

Stephen Michael Fishman, Assistant Professor of Philosophy
A.B., Columbia College; M.A., Ph.D., Columbia University

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A.B., The Woman's College of the University of North Carolina; M. A., Ohio State University

Hallie Leon Gatlin, III, Instructor in English
B.A., Wake Forest College; M.A., University of Iowa

Robert Harry Gibson, Assistant Professor of Chemistry
A.B., Erskine College; M.A., Ph.D., Columbia University

Barbara Ann Goodnight, Assistant Professor of Sociology
B.S., Texas Woman's University; M.A., Ph.D., Louisiana State University

Cloyd Smith Goodrum, Jr., Professor of Mathematics
B.A.E., Rensselaer Polytechnic Institute; M.A., University of North Carolina at Chapel Hill

Judith Greeson, Instructor in Psychology
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A.B., Duke University; M.Ed., D.Ed., University of North Carolina at Chapel Hill

John O. P. Hall, Professor of History
B.S., University of New Hampshire; Ph.D., Columbia University

Patricia Ann Harris, Acting Chairman, Department of Sociology, and Instructor in Sociology
B.A., University of Southwestern Louisiana; M.A., Louisiana State University

Curt Hardin Hartog, Instructor in English
B.A., University of Michigan; M.A., University of California at Berkeley

Herbert Hechenbleikner, Professor of Biology
A.B., University of North Carolina at Chapel Hill; M.A., Ph.D., Harvard University

Carroll Ann Hicks, Catalogue Librarian
A.B., Meredith College; M.S.L.S., University of North Carolina at Chapel Hill

Harper Thomas Higgins, Jr., Assistant Professor of Business Education and Business Administration
B.S., Presbyterian College; M.Ed., University of North Carolina at Chapel Hill

Philip Elwin Hildreth, Chairman, Department of Biology, and Distinguished Professor of Biology
A.B., Dartmouth College; M.A., Ph.D., University of California at Berkeley

Gene Richard Hogan, Assistant Professor of Biology
A.B., Hendrix College; M.S., American University of Beirut, Lebanon; Ph.D., University of Illinois

Edward Warren Hopper, Instructor in Spanish
B.A., North Texas State University; A.M., University of Missouri

Frances Bobbitt Hoyle, Associate Professor of Spanish
A.B., The Woman's College of the University of North Carolina; M.A., New York University

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James Richard Kuppers, Associate Professor of Chemistry
B.S., University of Florida; M.S., Louisiana State University; Ph.D., University of Florida

Miriam Almaguer Leiva, Instructor in Mathematics (part-time)
B.S., Guilford College; M.A., University of North Carolina at Chapel Hill

David Hallam Littlejohn, Assistant Professor of Spanish
A.B., A.M., University of North Carolina at Chapel Hill

Victor M. Lopez, Assistant Professor of Spanish
B.A., Hobart College; M.A., Cornell University

Joyce Ann Lowder, Instructor in Nursing
B.S., Queens College; M.S., Emory University

Pierre Macy, Professor of French
Bachelier es lettres, University of Nancy; Licencie es lettres, University of Dijon; Agrege des lettres, Docteur es lettres, University of Paris

Eleanor Mallory Markham, Associate Professor of Mathematics
A.B., A.M., Duke University

Thomas Lowell Markham, Assistant Professor of Mathematics
B.S., M.A., University of North Carolina at Chapel Hill; Ph.D., Auburn University

James Ronald Marshall, Instructor in Mathematics
B.S., Appalachian State Teachers College; M.Ed., University of North Carolina at Chapel Hill

Julian Dewey Mason, Jr., Assistant Professor of English
A.B., University of North Carolina at Chapel Hill; M.A., George Peabody College for Teachers; Ph.D., University of North Carolina at Chapel Hill

William Stephan Mathis, Chairman, Department of Fine Arts, and Professor of Music
B.Mus., Stetson University; M.Mus., University of Michigan; Ph.D., Florida State University

James Francis Matthews, Assistant Professor of Biology
A.B., Atlantic Christian College; M.S., Cornell University; Ph.D., Emory University

Terrill Wayne Mayes, Assistant Professor of Physics
B.S., Western Kentucky University; M.A., Ph.D., Vanderbilt University

Joseph Darryl McCall, Jr., Associate Professor of English
A.B., M.A., Ph.D., University of Florida

William Hugh McEniry, Jr., Professor of English
A.B., Birmingham-Southern College; M.A., Ph.D., Vanderbilt University; LL.D., Stetson University

Edward Fulton Menhinick, Assistant Professor of Biology
B.A., Emory University; M.S., Cornell University; Ph.D., University of Georgia

Roy Clifton Moose, Associate Professor of English
B.A., University of North Carolina at Chapel Hill; B.A., M.A., Oxford University, Oxford, England; Ph.D., University of North Carolina at Chapel Hill

Dan Lincoln Morrill, Assistant Professor of History
B.A., Wake Forest College; M.A., Ph.D., Emory University

Harvey Frank Murphy, Acting Chairman, Department of Health and Physical Education, and Assistant Professor of Health and Physical Education
B.S., Troy State College; M.A., Columbia University; Ph.D., University of Illinois

Catherine Nicholson, Associate Professor of Speech and Drama
B.A., Flora MacDonald College; M.A., University of North Carolina at Chapel Hill; M.A., Ph.D., Northwestern University

David Eugene Nixon, Assistant Professor of Mathematics
B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

Walter Endre Norem, Assistant Professor of Mechanical Engineering
B.S., Case Institute of Technology; M.S., Ph.D., University of Tennessee

John Henry Norman, Professor of Chemistry
A.B., Erskine College; M.A., University of North Carolina at Chapel Hill

Beatrice Louise Nugent, Instructor in Speech
B.A., Northeast Louisiana State College; M.A., Louisiana State University

Edward Samuel Oberhofer, Assistant Professor of Physics
B.S., North Carolina State College; M.S., Ph.D., North Carolina State University at Raleigh

Elizabeth Frix Patterson, Instructor in English
A.B., Stetson University; M.A., University of North Carolina at Chapel Hill

Edward Spaulding Perzel, Assistant Professor of History
B.A., M.A., University of Cincinnati; Ph.D., Rutgers, the State University

Louise Nelson Pfohl, Instructor in Piano (part-time)
B.Mus., Drury College; M.Mus., University of Michigan

Verne Roy Ploger, Assistant Professor of History
B.G.E., M.A., University of Omaha

James David Ramer, Head Librarian[1]
A.B., Occidental College; M.S., Columbia University

Charles Augustus Reavis, Assistant Professor of Education
A.B., M.Ed., University of North Carolina at Chapel Hill; Ed.D., Duke University

Robert William Rieke, Chairman, Department of History and Political Science, and Professor of History
B.A., Carleton College; M.A., Ph.D., University of Wisconsin

John Brawner Robbins, Assistant Professor of History
A.B., Hampden-Sydney College; Ph.D., Rice University

[1] On leave, 1967-68

Edwin Lee Rogers, Instructor in Economics and Business Administration
A.B., Lenoir Rhyne College

Lady Rosa Sabates, Instructor in Spanish
B.A., Camaguey College for Teachers, Camaguey; Doctor of Pedagogy, University of Havana, Cuba

Paul Antonius Saman, Assistant Professor of French
Prom. Fil., Charles University, Prague

Joseph Francis Schell, Associate Professor of Mathematics
B.S., University of Dayton; M.A., Ph.D., Indiana University

Mozelle Spainhour Scherger, Documents and Serials Librarian
B.S., Appalachian State Teachers College; B.S.L.S., University of North Carolina at Chapel Hill

Norman Willard Schul, Acting Chairman, Department of Geography and Geology, and Associate Professor of Geography
B.S., M.A., Miami University; Ph.D., Syracuse University

Duane Philip Schultz, Associate Professor of Psychology
B.A., Johns Hopkins University; M.A., Syracuse University; Ph.D., American University

Morton Shapiro, Assistant Professor of English
A.B., M.A., University of Miami; Ph.D., University of Alabama

Ronald Bernard Simono, Assitant Professor of Psychology
B.S., St. Norbert College; M.S., Ph.D., University of Wisconsin

Joseph Austin Slechta, Associate Professor of French
B.A., New York University; M.A., Ph.D., Tulane University

Vera McGowan Smith, Instructor in Nursing
R.N., Central Islip State Hospital; B.S., Seton Hall University

William Alexander Smith, Instructor in Electrical Engineering
B.S., M.S., Clemson College

William Miller Smith, Instructor in Geography and Geology (part-time)
A.B., The Citadel

David Sohn, Assistant Professor of Psychology
B.A., Brooklyn College; Ph.D., University of Texas

Raul Spivak, Musician-in-Residence

Frances L. Starner, Associate Professor of Political Science
B.A., Colorado State College of Education; M.A., University of California at Los Angeles; Ph.D., University of California at Berkeley

Alva Ware Stewart, Reference Librarian
B.A., M.S.L.S., University of North Carolina at Chapel Hill; M.A., Duke University

Martha Lawrence Stewart, Assistant Professor of Mathematics
A.B., Winthrop College; A.M., Duke University

Shirley Marie Tarlton, Head Technical Services Librarian
A.B., Queen's College; M.S.L.S., University of North Carolina at Chapel Hill

David Boyce Teague, Assistant Professor of Mathematics
B.S.E.E., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

Elbert Daymond Turner, Jr., Chairman, Department of Foreign Language, and Professor of Spanish
B.A., Davidson College; M.A., Ph.D., University of North Carolina at Chapel Hill

Thomas Coke Turner, Instructor in Accounting
B.S., Furman University; M.B.A., University of North Carolina at Chapel Hill; C.P.A.

Virginia Walker Valentine, Instructor in English
B.A., Texas State College for Women; M.A., Southern Methodist University

Robert Everett Vermillion, Acting Chairman, Department of Physics, and Assistant Professor of Physics
A.B., King College; M.S., Ph.D., Vanderbilt University

James Hatton Wahab, Chairman, Department of Mathematics, and Professor of Mathematics
B.S., College of William and Mary; M.A., Ph.D., University of North Carolina at Chapel Hill

Robert Marsden Wallace, Acting Chairman, Department of English, and Professor of English
A.B., Wofford College; A.M., Ph.D., University of North Carolina at Chapel Hill

Samuel Dibble Watson, Jr., Instructor in English
B.A., Wofford College; M.A., University of Virginia

Burton Howard Wayne, Associate Professor of Electrical Engineering
B.S., Michigan State College; M.S., Ph.D., Michigan State University

Frank Rutledge Whittacre, Assistant Professor of Education
B.S., State Teachers College, Indiana, Pennsylvania; M.A., Ed.D., Western Reserve University

Sadie Hamrick Williamson, Instructor in Economics and Business Administration
A.B., The Woman's College of the University of North Carolina; M.S., University of North Carolina at Chapel Hill

Edyth Farnham Winningham, Professor of Political Science, Emeritus
A.B., University of North Dakota; A.M., University of North Carolina at Chapel Hill

Loy Hahn Witherspoon, Chairman, Department of Philosophy and Religion, and Assistant Professor of Philosophy and Religion
A.B., B.D., Duke University; Ph.D., Boston University

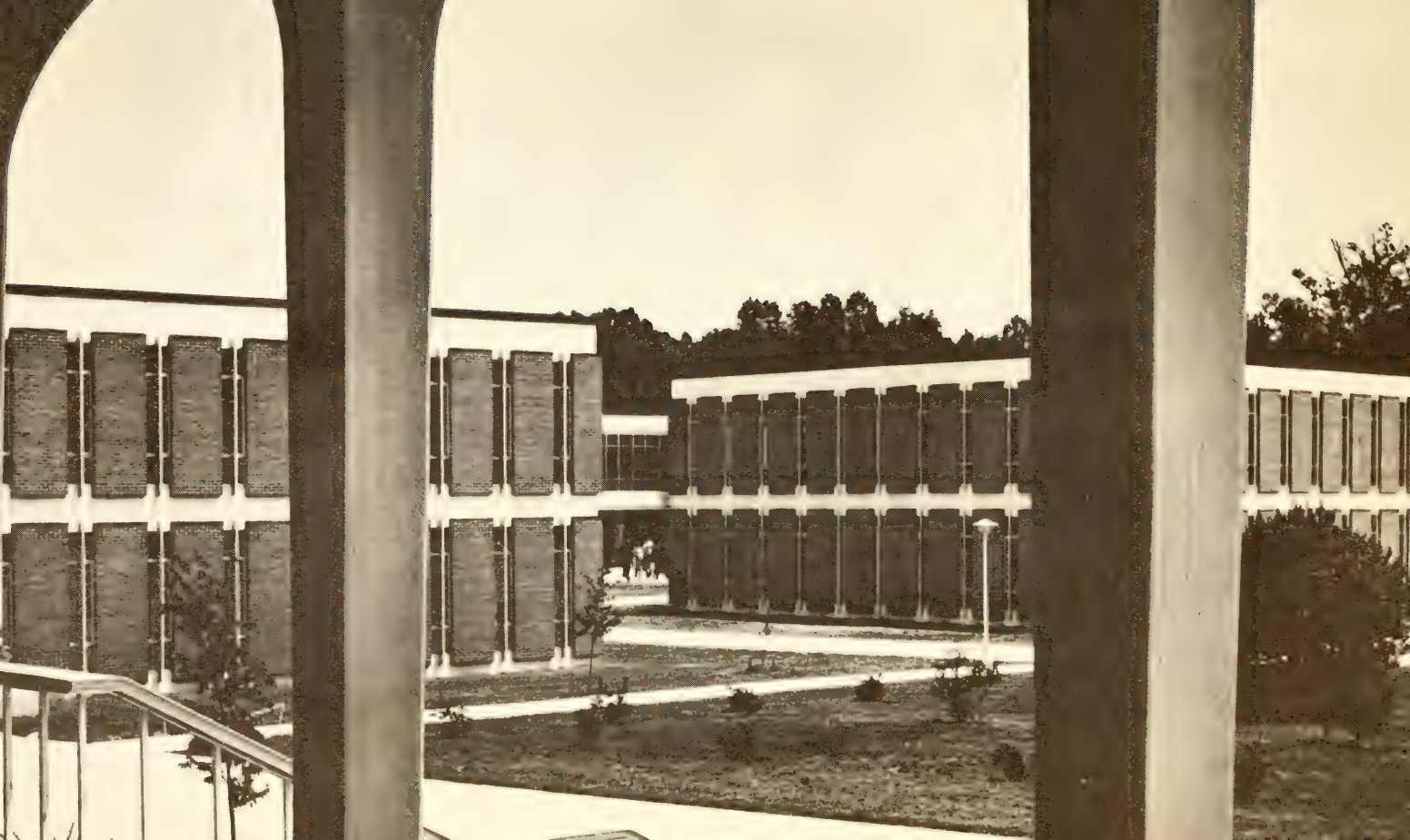
Harvey Lewis Woodruff, Instructor in Music (part-time)
B.S., New York University; M.A., Columbia University

Hazel Drye Wright, Instructor in Mathematics
B.S., Appalachian State Teachers College; M.A., Wake Forest College

Esther Emmy Wruck, Instructor in German
A.B., Hope College; A.M., University of Rochester

William David Wubben, Acting Chairman, Department of Economics and Business Administration, and Professor of Economics and Business Administration
B.Ph., M.B.A., University of Chicago; Ph.D., The Claremont Graduate School

Catherine Sue Yielding, Instructor in History
B.A., Emory College of Emory University; M.A., Emory University



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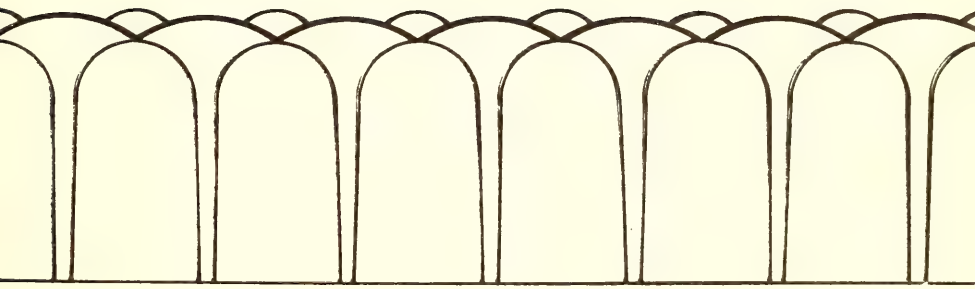

Mailing Address:

The University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

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I. THE UNIVERSITY

THE UNIVERSITY

The University of North Carolina at Charlotte is one of a group of new universities developing in the latter half of the twentieth century. These are the universities which are coming into being in or near the nation's largest urban areas. They are developing because the city is the laboratory of life in contemporary America. The city is where the action is.

Already many distinguished American universities located in isolated areas are taking students by bus to urban areas so that they may study the city at first hand and so that the students may take advantage of the city's cultural and educational opportunities.

The University of North Carolina at Charlotte is located in the largest urban center of the two Carolinas. Moreover, Charlotte is also the largest city in the Piedmont Crescent, which has been predicted to become the fifth largest urban complex in the nation.

Proximity to and availability of jobs both during college years and after graduation are important advantages to students provided by a university in an urban setting.

Being one of the new urban-oriented universities and at the same time a campus of the oldest state university in the United States, the University of North Carolina at Charlotte has both the inclination to experiment and innovate and the ability to draw upon the wisdom and experience of years of tradition.

It is expected that the trademark of the University of North Carolina at Charlotte will come from its interaction with Charlotte and other urban centers of the State.

The University of North Carolina at Charlotte came into being on July 1, 1965 as the result of legislation ratified by the 1965 General Assembly on March 3, 1965, making Charlotte College the fourth campus of the University of North Carolina. The movement which led to the new campus began with the creation in 1961 of the Governor's Commission on Education Beyond the High School. One of the questions studied by the Commission was the need for additional campuses of the University. In the meantime the President of the University had referred a request for university status made by Trustees of Charlotte College to the

Executive Committee of the University Board of Trustees.

The Governor's Commission recommended guidelines for establishing new campuses, which were essentially adopted by the 1963 General Assembly. The University then conducted a study of the Charlotte area to determine the need for a campus. A University Committee found that the Charlotte area did need a campus of the University and recommended that Charlotte College be used as the base for the fourth campus.

The University Trustees approved the recommendation as did the North Carolina Board of Higher Education. Legislative approval followed on March 2, 1965.

However, the institution can trace its lineage back to 1946 with the establishment of the Charlotte Center of the University of North Carolina to provide instruction for returning World War II veterans. The Charlotte Center became Charlotte College under the Charlotte Board of School Commissioners in 1949. In 1958 the College officially was placed under the North Carolina Community College System. The voters of Charlotte and Mecklenburg County went to the polls on four occasions to vote upon themselves taxes for the support of the institution.

A 270-acre campus eight miles from the center of Charlotte on North Carolina Highway 49 was purchased on February 4, 1959, as a permanent site for the College, which had begun in borrowed space in Central High School. In the fall of 1961, the College moved to the new campus.

In May 1963 the General Assembly changed the status of Charlotte College to that of a senior college fully supported by the State. The campus was expanded from the original 270 acres to approximately 900 acres by the gift of some 500 acres by the Mecklenburg County Commissioners for the citizens of the county in the spring of 1964, supplemented by 127 acres purchased by the State of North Carolina.

Charlotte College awarded its first and only baccalaureate degrees on June 6, 1965. The University of North Carolina at Charlotte awarded its first baccalaureate degrees on May 29, 1966.

Dr. D. W. Colvard was elected the first Chancellor of the Charlotte campus on January 28, 1966. Dr. Bonnie E. Cone, who had brought the institution to university status as President of Charlotte College and served for a time as

Acting Chancellor, was appointed to the position of Vice Chancellor for Student Affairs and Community Relations.

A top administrative team has been assembled, comprised of the Chancellor, the Vice Chancellor for Academic Affairs, the Vice Chancellor for Student Affairs and Community Relations, and the Business Manager.

The 1967 General Assembly authorized an extensive building program for UNC-C. Buildings now authorized will provide the facilities required by a well rounded university campus. The buildings include two 12-story dormitories to house a total of 1,000 students, a health and physical education building, a major addition to the Library, a fine arts building, and a cafeteria. The campus is a major construction site as these projects leave the drawing boards and take form.

Friends of the University of North Carolina at Charlotte play a vital role in its life. Private gifts are expected to help the institution attain its goal of excellence. A "Patrons of Excellence" program, under which donors give $1,000 a year for 10 years, is being used to help bring outstanding educators to the campus, to purchase needed volumes for the Library, and to provide scholarships for deserving students. Three endowed professorships have been established with gifts of $100,000 each from three donors. A $100,000 gift from the Belk interests is providing for construction of a bell tower to furnish melody and an attractive upward thrust to the center of the campus.

The University's faculty members are for the most part young and highly qualified. Faculty members at UNC-C have accepted the challenge of building a new institution. They are willing to sacrifice the stability they might have found in long established universities for the satisfaction of having helped to build a reality from a dream.

At UNC-C there are opportunities for warm and helpful relationships with faculty members.

THE EDUCATIONAL PROGRAM

The educational program is a broadly based one under the guidelines established by the University Trustees on May 23, 1966. Those guidelines allow the University of North Carolina at Charlotte to "provide graduate and undergraduate instruction and research opportunities in the basic

Vice Chancellor McEniry has an informal session with students.

natural sciences, the social sciences, the humanities, the fine arts, and teacher education."

At this point the University of North Carolina at Charlotte is authorized to award the degrees of bachelor of arts, bachelor of science, and bachelor of science in engineering. Graduate work is offered on the campus in cooperation with other campuses of the University, but this institution plans to begin its own graduate work almost immediately.

The University's academic structure is organized by Divisions. Each Division has an outstanding educator as its chairman. Following are the Divisions: Economics and Business Administration, Engineering, Humanities, Mathematics and Natural Sciences, Nursing, Social and Behavioral Sciences, and Education.

ACCREDITATION

The University of North Carolina at Charlotte is fully accredited by the Southern Association of Colleges and Schools and by the North Carolina Association of Colleges and Universities. Accreditation by the Southern Association is retroactive to the first four-year graduating class of 1965.

THE CAMPUS

The University of North Carolina at Charlotte is located on a rolling campus of woods, hills, fields and ponds. A

picturesque view of the surrounding hillsides can be seen from the relatively high site of the central campus. The 900-acre campus is situated eight miles northeast of downtown Charlotte on N. C. Highway 49 near its intersection with U. S. Highway 29. The campus is bounded on the west by Interstate Highway 85. With a population of 263,000, Charlotte, in Mecklenburg County (population 341,000) serves as a center of commerce, industry and culture for a broad area of the southern Piedmont of North Carolina and for a number of South Carolina communities.

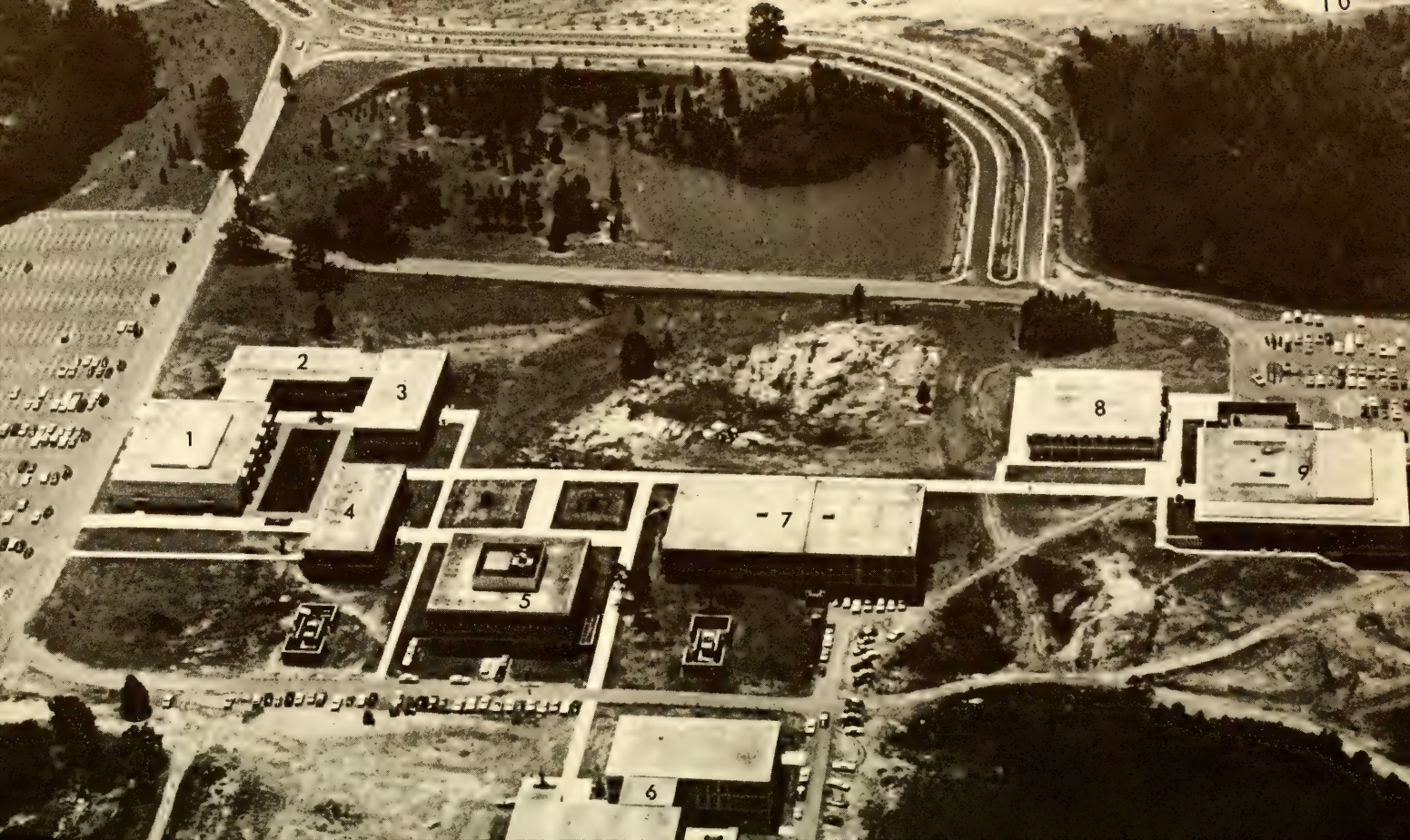
Skyline of rapidly growing Charlotte.

THE CATALOGUE

The catalogue is not an irrevocable contract. Regulations printed herein are subject to change by the faculty at any time. University regulations are policy statements to guide students, faculty, and administrative officers in achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authority with the interests of the students and the institution in mind. Students are encouraged to seek information as they require it about the application of any policy.

NONDISCRIMINATION

The University of North Carolina at Charlotte will accept all qualified students, within budgetary limitations, without regard to race, creed, color, or national origin and recruits faculty and staff and conducts all programs on the same basis.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UNIVERSITY BUILDINGS

Code to Buildings in aerial view at left.

1. Building C
2. Building B
3. Building A
4. Language Building (L)
5. W. A. Kennedy Building (Science)
6. Engineering-Mathematics-Computer Building
7. J. Murrey Atkins Library
8. Administration Building
9. University Union
10. Men's and Women's Dormitories (To be completed Summer, 1969)

Funds have been authorized for the following additional buildings. Planning is well under way on these projects, and some are under construction.

A. Cafeteria

B. Health and Physical Education Building (Gymnasium)

C. Major addition to Library

D. Fine Arts Building

E. The "D" wing of the Liberal Arts Complex

F. Belk Tower (Approximately 150 feet high—will house carillon)

An amphitheater to seat 2,000 and with room for substantial expansion was completed in the Summer of 1968.

1969

SEPTEMBER

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1970

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SCHEDULE OF CLASSES

Day classes are scheduled normally from 8:30 a.m. until 5:30 p.m., Monday through Friday.

Evening classes are scheduled from 6:00 p.m. until 10:30 p.m., Monday through Thursday.

ACADEMIC CALENDAR, 1969-1970

FALL SEMESTER

September 9	Tuesday	Residence halls open
September 9	Tuesday	Faculty and Staff Convocation
September 10-11	Wednesday-Thursday	Orientation, advising and registration for entering freshmen and transfers
September 12	Friday	Registration for special students and continuing students who have not preregistered (Last day to register without a late penalty of $10.00)
September 15	Monday	Classes begin
September 19	Friday	Last day to register or add courses for credit
September 26	Friday	Last day to withdraw (or drop a course with refund)
October 10	Friday	Last day to drop courses without grade evaluation
November 4	Tuesday	Reports of unsatisfactory grades by faculty
November 25	Tuesday	Last day of classes before Thanksgiving holidays
December 1	Monday	Classes resume
December 1	Monday	Last day to file degree applications for May 31, 1970 commencement
December 8-12	Monday-Friday	Pre-registration for spring semester 1970
December 16	Tuesday	Last day to drop a course
December 17	Wednesday	Last day of classes before Christmas holidays
January 5	Monday	Classes resume
January 13	Tuesday	Last day of classes
January 14	Wednesday	Reading period
January 15	Thursday	Final examinations begin
January 23	Friday	Final examinations end

SPRING SEMESTER

January 29	Thursday	Registration for new freshmen and transfer students
January 30	Friday	Registration for special students and any continuing students who have not pre-registered (Last day to register without a late penalty of $10.00)
February 2	Monday	Classes begin
February 6	Friday	Last day to register or add courses for credit
February 13	Friday	Last day to withdraw (or drop courses) with refund
February 27	Friday	Last day to drop courses without grade evaluation
March 19	Thursday	Unsatisfactory grade reports by faculty
March 26	Thursday	Last day of classes before Easter holidays
April 1	Wednesday	Classes resume
April 21	Tuesday	Last day to drop a class
May 4-8	Monday-Friday	Pre-registration for summer session and fall semester 1970
May 18	Monday	Last day of classes
May 19	Tuesday	Reading period
May 20	Wednesday	Final examinations begin
May 28	Thursday	Final examinations end
May 31	Sunday	Commencement

SUMMER TERM, 1970

First Term

June 9	Tuesday	Registration (Last day to register without a late penalty of $5.00)
June 10	Wednesday	Classes begin
June 11	Thursday	Last day to register or withdraw (or drop a course) with refund
June 15	Monday	Last day to drop course without grade evaluation
July 1-3	Wednesday-Friday	Pre-registration for second summer session
July 8	Wednesday	Last day to drop a course
July 14	Tuesday	Last day of classes
July 15	Wednesday	Reading period
July 16-17	Thursday-Friday	Final examinations

Second Term

July 21	Tuesday	Registration (Last day to register without a penalty of $5.00)
July 22	Wednesday	Classes begin
July 24	Friday	Last day to register or withdraw (or drop a course) with refund
July 29	Wednesday	Last day to drop a course without grade evaluation
August 19	Wednesday	Last day to drop a course
August 25	Tuesday	Last day of classes
August 26	Wednesday	Reading period
August 27-28	Thursday-Friday	Final examinations

II. ACTIVITIES

STUDENT ACTIVITIES

INTRODUCTION

Students at the University of North Carolina at Charlotte are encouraged to participate in extracurricular activities. Student Government, the Union, and the publications in particular are not only a vital part of the operation of the institution, but they are also believed to be an important part of the educational experience of the student. Students are advised to choose activities wisely and balance academic activities with service, religious, athletic, social and recreational activities.

STUDENT GOVERNMENT

The Student Government Association provides students an early experience in governmental affairs. Students will find their work in Student Government a useful background for later public service. The history of Student Government is as old as the institution itself. The University encourages student participation in the affairs of the University and is currently working with student leaders in the development of residence halls organization and government.

Students serve on some faculty and administrative committees. Students represent the University in a variety of ways, such as assisting with tutorial projects in the community. The leaders of Student Government work to represent the student body and to develop the students' pride in and loyalty to their University. The Student Government Association is a member of the United States National Students Association (NSA).

Student Government consists of three divisions:

1. The Executive Council, made up of the President, the Vice President, the Secretary, and the Treasurer of the student body.

2. The Student Legislature, composed of the President, the Vice President, and five representatives from each of the four classes. The Vice President serves as a non-voting chairman.

3. The Student Court, established for the purpose of judging violations of the rules and regulations of the University and the Student Legislature and administering the Honor Code. This Code, adopted by the Student Body during the fall semester of 1965, reads as follows:

> "Under the Honor Code you are on your honor not to cheat, lie, or steal; and if you see another student doing so you are on your honor to report the individual and the circumstances to the appropriate student agency."

UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students,

faculty, administration, alumni, and guests. The Union is part of the students' educational program. It serves as a laboratory for citizenship in much the same way that Student Government does. It helps students develop good taste in social and cultural activities.

The Union is the chief sponsor of most social and cultural events on the campus. Activities are planned with the goal of developing well rounded individuals. Every student is a member of the Union organization and is encouraged to participate in its activities.

The Union is governed by a policy-making body known as the Governing Board which consists of four faculty members and the student officers of the Union.

ATHLETICS

Athletic activity at the University of North Carolina at Charlotte is believed to be a necessary part of balanced student life. As a result, the institution fields teams in an ever-growing list of sports under the nickname of "Forty-Niners." These include basketball, bowling, cross-country, golf, tennis, track, and wrestling. Other sports will be added in time.

Contests are scheduled in the Dixie Intercollegiate Athletic Conference of which UNC-C is a charter member, and with other similar institutions.

A health and physical education building authorized by the 1967 General Assembly will give the institution one of the most outstanding physical plants for the athletic and physical education programs to be found in the Southeast.

HOBBIES

Opportunities are provided for students to develop hobbies they can pursue for avocational or recreational purposes after graduation. Students can learn such crafts as woodworking, painting, ceramics, and leatherworking. Darkrooms are available for photography.

INTRAMURALS

An intramural sports program is designed to help students develop their bodies as well as their minds. Students are encouraged to participate so that exercise and sports skills developed in college can be carried into later life to promote physical well being. The health and physical education facility will also be a valuable addition to the intramural program.

RELIGIOUS LIFE

A number of religious groups in Charlotte and North Carolina contribute to the United Religious Ministry program at the

University of North Carolina at Charlotte. Funds they contribute make possible programs of religious content and significance. A faculty member serves as the coordinator of religious activities. Individual student religious groups are encouraged on the campus.

SOCIAL LIFE AND RECREATION

Students have a variety of opportunities for enjoyable social activities and recreation. Dances range from highly informal to formal. Social and recreational activities center in the University Union. Activities include coffee hours, movies, picnics, receptions, game tournaments, concerts and lectures. Student leaders and often the student body at large are included in many faculty and administration functions. Social life is designed to be wholesome but lively.

THE UNIVERSITY FORUM COUNCIL

The University Forum Council is responsible for one of the highlights of the University year, the annual University Forum, begun with a successful program in the spring of 1966. The Forum brings outstanding national figures to the campus to examine key issues in depth. The University Forum Council is comprised of representatives of the student body, the faculty, the administration, and the community. Proceedings of the Forum are usually published in booklet form.

PUBLICATIONS

BOARD OF STUDENT PUBLICATIONS

The Board of Student Publications, also known as the Publications Board, is comprised of student, faculty, and administration members and representatives of the student publications. Its purposes are to promote the objectives of each publication and to guarantee editorial freedom to the publications within the framework of responsible journalism.

THE BARNSTORMER

The *Barnstormer,* a magazine of literary content, provides an outlet for creative writing talent on the campus. The broad scope of subject matter allows for a wide variety of contributions.

NEWSPAPER

Students publish a weekly newspaper. *The Carolina Journal,* to cover campus news and provide journalistic experience. Experience on a campus newspaper together with a broad educational background often provide the background for a career on a newspaper or magazine. The newspaper provides a vital service to the entire campus family by keeping its members informed.

YEARBOOK

The yearbook, *Rogues 'N Rascals* is another publication which provides both a service to the University and an opportunity for student journalists to gain essential skills for later careers. The yearbook is designed to provide a valid picture of the spirit of campus life. It is valued as an organized pictorial record and as an opportunity for creative student journalists to produce a book which is aesthetically pleasing and representative of the times. A copy of *Rogues 'N Rascals* is provided to all students taking eight or more semester hours of work each semester during the academic year. Others may obtain a copy upon payment of $7.50.

ORGANIZATIONS

ACADEMIC

The purpose of the *University Chapter of the Student National Education Association,* which is affiliated with the North Carolina Education Association, is to inform students of the possibilities offered in the field of education, to encourage qualified students to become teachers, and to provide students with an opportunity to discuss educational issues and problems.

The Engineers' Club was formed in the fall of 1960 to give the student engineer a greater understanding of all phases of engineering. Through the assistance of the Charlotte Engineers' Club, examples of emerging engineering theory are presented in the form of practical applications.

Chez les Francais, the French Club, is open to all students interested in the language, customs and culture of the French people. Social and educational meetings are held for the purpose of broadening the members' knowledge of French civilization and increasing their conversational ability in the French language.

El Club Espanol is open to students interested in fellowship and conversation in Spanish. The meetings are informal and are usually conducted in both Spanish and English. Frequently Spanish speaking guests talk to members of the club about the Hispanic countries. The students also participate in the presentation of plays, songs, dances, and films.

The Chemical Society is open to students with a deep interest in chemistry and is designed to afford opportunity for members to become better acquainted, to secure the intellectual stimulation that arises from professional association and to instill a professional pride in chemistry and chemical engineering.

The Business Club is open to students majoring in business who have completed their freshman year. Purposes include increasing knowledge and interest in the practical application of business practices, gaining insight into the business world, and stimulating fellowship among members through mutual help and social activities.

The *Senior Classical League* has as its objective the promotion of the study of the classics at the University.

The Student Nurse Club is open to students majoring in nursing. The purpose shall be to regulate all matters pertaining to the life of the students of the Department of Nursing not under the jurisdiction of the faculty; to increase a sense of individual responsibility; and to cooperate with the faculty in creating and maintaining high ideals for the nurses of the University.

The Psychology Club is open to any interested student, and the purpose is to promote an interest in psychology and a better understanding of the field of psychology and its opportunities by programs and speakers.

ALUMNI ASSOCIATION

Graduating seniors of the University of North Carolina at Charlotte are eligible for membership in the Alumni Association. Membership can help the student to maintain friendships of college days and to maintain a mutually beneficial association with the University. The Association provides an avenue through which the alumnus can contribute in a meaningful way to the financial resources of the University.

The graduate should notify the Alumni Office of address changes and significant events in his life, such as marriage, births, new positions and honors. In this way adequate records can be maintained, and the Alumni Office can pass good news along to friends of the alumnus.

ATHLETICS

The *Fencing Club* is organized to promote interest in the sport of fencing.

The Judo and Kung-Fu Society is open to interested students and faculty members. The purpose is to encourage student interest in the martial arts, and through this means, promote student participation in University functions; to demonstrate the philosophy of the oriental martial arts, and the merits of physical and mental fitness.

SERVICE

Circle K is a men's service organization that seeks to develop activities that will be of significant value to the university. Students may ask to join Circle K or they may be asked by other Circle K members to become affiliated. The University Chapter is sponsored by the Mecklenburg Kiwanis Club.

Alpha Phi Omega, a national service fraternity, is open to men students with past experience in scouting, YMCA, and other service organizations of this nature. Its purposes are to develop leadership, to promote friendship, and to provide service to chapter, campus, community and country.

Rotaract Club is a men's service organization sponsored by the Rotary Club to promote leadership and community responsibility.

SCHOOL SPIRIT

A team of nine *Cheerleaders* is selected each year to

support the athletic teams and promote school spirit in all activities.

The *Pep Club* is open to any interested student. The purpose is to promote school spirit.

THE BARNSTORMERS

The objectives of the *Barnstormers* are promoting and displaying quality works in writing and art on campus.

MUSICAL

The University Chorus, which was re-organized in 1956, has added much to the atmosphere of the school. The members of this group meet weekly with a dual purpose of enjoying singing together and improving their musical abilities. The Chorus furnishes musical programs for special events during the year. One semester hour of credit may be earned for each semester of participation. Only four semester hours may be credited toward a degree.

ADVISORY

The Freshman Advisory Committee has a dual purpose: to help orient new students in the way of the University and to assist the faculty during registration.

Practice for a performance of "Waiting for Godot."

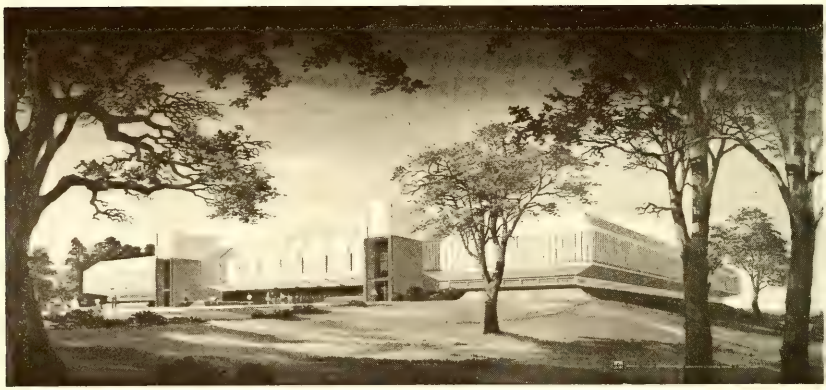
POLITICAL

The *Young Democrat Club* and the *Young Republican Club* give the student an opportunity to engage in practical politics as well as to hear speakers from local, state, and national levels of our political parties. Membership is open to all interested students.

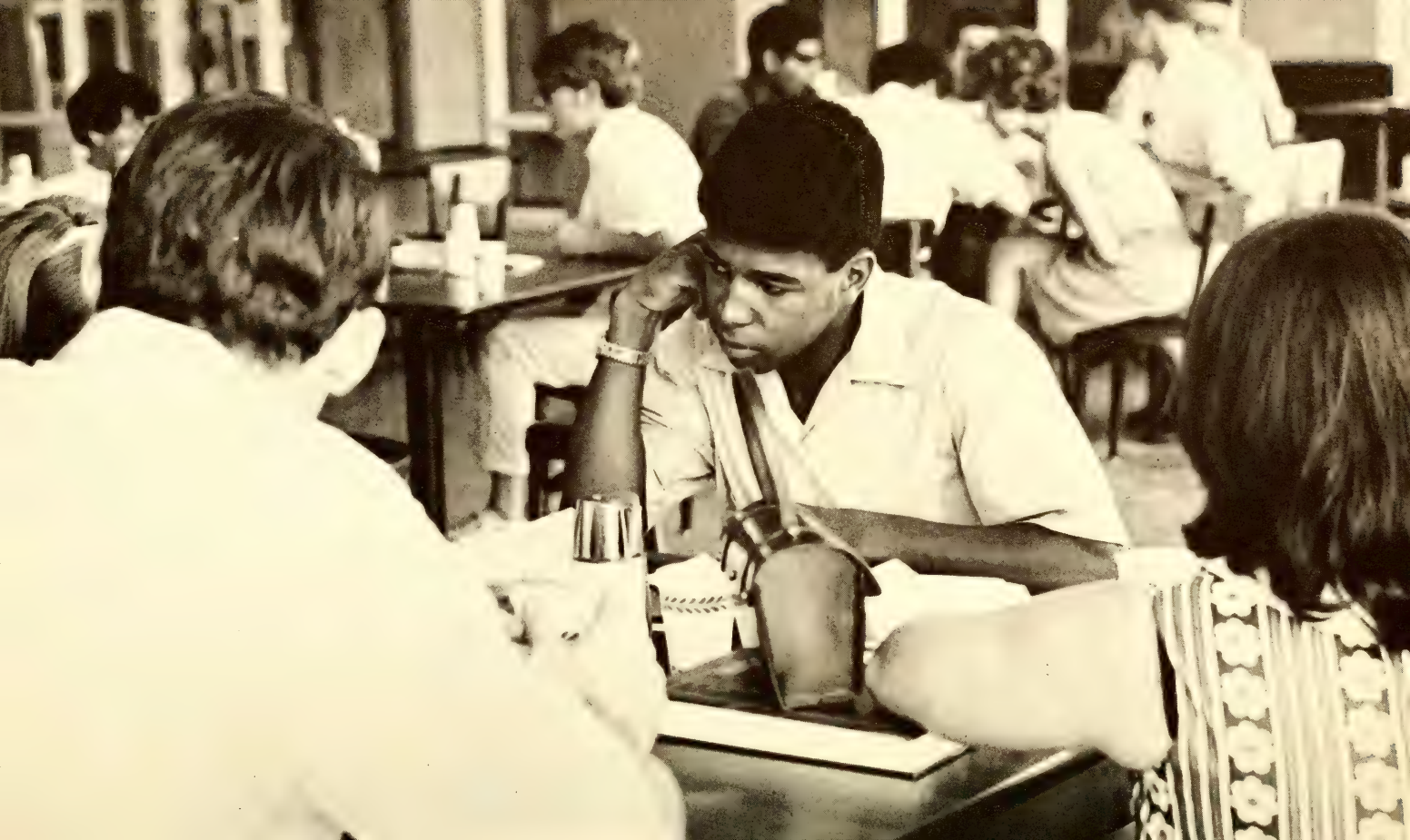
The Student Party and *The University Party* are organized to promote student interest and participation in campus politics, including endorsement of candidates for campus elective offices and their platforms. Any student may join either, but not both, of the parties.

RELIGIOUS

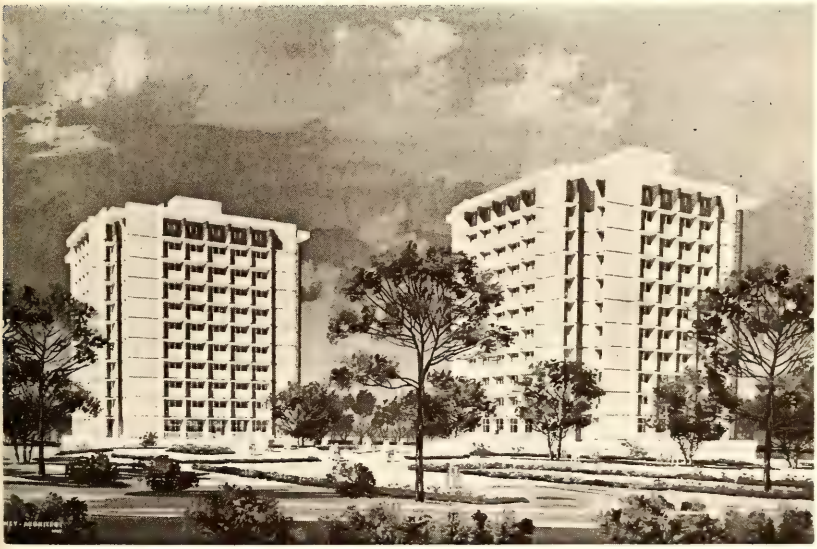
The Baptist Student Union is organized to involve students in responsible church membership and in denominational understanding and participation and to lead them to a Christian commitment.



Architect's rendering of Health and Physical Education Building.



III. FACILITIES AND SERVICES



Residence halls for men (left) and women.

UNIVERSITY RESIDENCE HALLS

The University of North Carolina at Charlotte offers a new concept in on-campus housing. Two residence halls to be ready in September, 1969, provide a congenial atmosphere for living and learning. The buildings, while housing a large number of students, are designed to provide for the intimacy of small groups as well as for the larger social groupings through which a meaningful living-learning program can be developed.

The halls for men and women are linked by a paved plaza, making possible wholesome social relationships through a broad range of inter-group activities. Both residence halls share a dining hall.

In addition to well planned bedrooms, the halls provide lounges, study and seminar rooms and recreation space. Both halls are air conditioned for year-round comfort.

The bedrooms are a combination study and sleeping space for two students. Each student will have his own desk with large filing drawers and a bulletin board, bookshelves and a study lamp. A built-in wardrobe, dresser and bed with storage under it are provided.

Two high speed elevators service each building.

The main floor contains the office, student mail boxes, a concessions area, a library, a lounge, student government offices and a resident manager's suite. The lower floor contains the recreation room, trunk storage and a laundry area.

The University has two main purposes in providing housing accommodations on campus: to provide comfortable lodging at the lowest possible cost, and to provide the group living experience which will contribute to the personal development and education of each student.

An application form is available from the Dean of Students. A fifty-dollar deposit must accompany each application.

For cost of room and board see Section IV.

THE LIBRARY

The J. Murrey Atkins Library is at the heart of the development of the University of North Carolina at Charlotte. A major addition to the present building, authorized by the 1967 General Assembly, will be the foundation upon which an institution of excellence will be built.

The library has an open-shelf collection of approximately 100,000 bound volumes and 50,000 volumes in microform. Some 2,000 journals are subscribed to on a continuing basis. Named a depository for government documents in 1964, the library receives each year thousands of publications printed at the Government Printing Office. Back files of the *New York Times*, the *Charlotte News*, the *Charlotte Observer* and other major newspapers are available on microfilm. Sound recordings and some motion pictures are also available. In addition, a general pamphlet file as well as a curriculum materials file contain non-book

materials of value to all students. The latter file is particularly useful to students who plan to teach in elementary and secondary schools.

A special collection of books, periodicals, and other materials relating to North and South Carolina is housed on the second floor. The archives collection includes manuscripts, photographs, and other material relating to the history of the University.

The Library of Congress classification system is used for the arrangement of books and periodicals in the Atkins Library.

Students and faculty members have at their service a reference collection and a reference librarian to guide them to needed information.

Facilities for obtaining both positive and negative copies of library materials are available. Books and periodicals not available in the Atkins Library may be obtained from other libraries through Inter-library Loan, photocopies usually being substituted for articles of less than twenty pages.

Exhibits featuring the work of both campus and community artists are frequently presented in lobby areas, as are special displays of library materials.

The library provides students with general and recreational reading materials in addition to materials directly related to classroom work. Comfortable reading areas are provided throughout the building. Student carrells and tables are provided for concentrated study. Microfilm readers are provided for materials requiring their use.

The Atkins Library collection contains some rare works, some beautifully printed and bound works and some books autographed by important persons.

Friends of the library have played a significant role in developing the present collection. Gifts of money and volumes are a vital part of the library's resources.

THE UNIVERSITY UNION

The University Union is the community center of the University, for all members of the University family—students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program. The Union provides for the services, conveniences, and amenities the members of the University family need in their daily life on the campus and for getting to know and understand one another through informal association outside the classroom.

The Union Building houses the bookstore, cafeteria, games room, lounge-gallery area, a large multi-purpose room with facilities for dances, lectures, films, and banquets, meeting rooms, offices of student government and major publications, hobby shops, and an information center.

THE BOOKSTORE

In addition to required textbooks, the campus bookstore makes available paperback books for leisure reading, records, sweatshirts and jackets, campus emblems, and routine school supplies.

TRANSPORTATION

Charlotte City Coach Lines provides bus transportation from Charlotte to the campus on a regular schedule, connecting with established routes. Detailed information regarding routes, times and fares may be obtained from the main office of the Charlotte City Coach Lines or at the University Union Information Center. Weekly passes may be purchased at either location.

UNIVERSITY COUNSELING CENTER

The Counseling Center offers professional assistance to students on a voluntary basis. Counseling helps students to deal effectively with personal-emotional concerns and educational-vocational decision-making.

An occupational-educational information library is maintained by the Counseling Center.

EDUCATION FOR THE VOCATIONALLY HANDICAPPED

Students who have suffered a disability which renders them vocationally handicapped are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services which include vocational counseling and guidance, medical treatment and placement, and training or scholarships which cover the costs of training. Payment of University expenses such as books, fees and tuition may be available. All the services are available at no cost to the individual who qualifies.

A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by telephoning the Vocational Rehabilitation Office, located in Room 206, 517 Insurance Lane, at 375-8686.

PLACEMENT SERVICE

The Placement Service for graduates is centered in the Office of Student Affairs. This Office maintains information on positions available for graduates and arranges for interviews between prospective graduates and employers during the spring semester. The Office seeks to develop personal data for each prospective graduate during his senior year and maintains a set of credentials which the graduate may have sent to prospective employers over the years. Although this Office coordinates the placement work involving prospective teachers, the members of the Department of Education are primarily responsible for the placement of teachers.

COMPUTER CENTER

The Computer Center at the University houses an IBM System/360 model 30 computer system which is among the most modern third generation digital computers. The center is maintained in a semi-open shop fashion for students and faculty members with support provided to those who wish to use the computer.

Students are encouraged to use computing as a new resource in learning. As a learning resource, computing enables the student to deal with realistic problems rather than oversimplified models and frees time for thought and insight by lessening the time spent in the drudgery of problem solving and in the analysis of data.

IV. ADMISSIONS, ACADEMIC REGULATIONS, COST AND FINANCIAL AID

ADMISSIONS AND ACADEMIC REGULATIONS

REQUIREMENTS FOR ADMISSION

GENERAL ADMISSION REQUIREMENTS

1. Satisfactory evidence of good character.
2. Evidence of good physical and mental health.
3. Application fee of $10.00.
4. Satisfactory record of scholastic achievement.
5. Additional requirements according to the type and level of admission as indicated below:

ADMISSION TO FRESHMAN STANDING

1. Applicants must present a record of graduation from an accredited high school or preparatory school. The form for the secondary school record which is sent to each applicant with his application blank must be executed and returned to the Office of Admissions by the high school principal or counselor.
2. Applicants must present sixteen acceptable units, as required by the degree program for which they apply. Only three of these sixteen units may be in nonacademic or vocational subjects, such as home economics, agriculture, shorthand, typewriting, or bookkeeping.
3. Satisfactory scores on the Scholastic Aptitude Tests of the College Entrance Examination Board. Each applicant for admission to the freshman class is required to take and make satisfactory scores on the Scholastic Aptitude Tests and to have the Educational Testing Service send the official examination score reports directly to the Director of Admissions.
4. The principal or counselor of the secondary school must furnish a satisfactory recommendation. Personal data is to be submitted directly to the Office of Admissions by the principal or counselor on the application form which is sent each applicant.
5. Application fee of $10.00.

ADMISSION OF OUT-OF-STATE STUDENTS

Up to 15 per cent of the undergraduate students admitted during a semester may come from out of the state.

Out-of-state students who are children of alumni of the University are expressly exempt from this limitation with the proviso that they may be required to pay the regular out-of-state tuition.

ADMISSION OF TRANSFER STUDENTS

TRANSFER FROM COLLEGE OR UNIVERSITY

1. An official transcript of record from each college or institution beyond the high school attended, showing honorable dismissal, should be sent directly to the Director of Admissions. Also recommendations should be sent from all institutions previously attended.
2. To be admitted as a non-freshman transfer student the applicant must have acquired sufficient credits at an accredited institution to have the equivalent of sophomore standing at The University of North Carolina at Charlotte. In no case shall less than 24 semester hours be considered the equivalent of sophomore standing.
3. To be admitted with transfer credit:
   a. An applicant must have a "C" average (2.0 based on an A grade being equated at 4 points according to our method of computation) or better on all the courses taken at institutions attended.
   b. An applicant must have at least a "C" grade average on all courses that are acceptable for evaluation.
   c. Only courses with a grade of "C" or better may be accepted for transfer credit.
4. Transfer students may be accepted as freshmen only when (1) they meet all entrance requirements of freshmen including satisfactory scores on the scholastic aptitude test of CEEB and (2) meet the conditions in 3. (a), (b) and (c) above.
5. Applicants may be asked to take special tests as a condition of admission.
6. No exceptions shall be made without the approval of the

faculty admissions committee of the University of North Carolina at Charlotte.

TRANSFER WITHIN THE CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

Transfer applicants from other campuses of the consolidated University of North Carolina are considered for admission on the basis of different qualitative academic requirements.

TRANSFER FROM JUNIOR COLLEGE

Transfer students entering the University after attending a junior college will receive no more than 66 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Arts degree and no more than 70 semester hours transfer credit (including two semester hours of physical education) toward the Bachelor of Science and Bachelor of Science in Engineering degrees.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Prescribed courses for admission to candidacy for the degree of Bachelor of Arts or Bachelor of Science are:

English	4 units	Natural Science	1 unit[3]
Mathematics	2½ units[1]	Electives	4½ units
Foreign Language	2 units[2]		
United States History and Social Science	2 units	(Total)	16 units

[1] The 2½ units of Mathematics must include 1 unit of Plane Geometry or the equivalent in integrated courses.
[2] Two units in the same Foreign Language are required.
[3] The Natural Science presented must represent one year with laboratory.

PRESCRIBED COURSES FOR ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Prescribed courses for admission to candidacy for the degree of Bachelor of Science in Engineering are:

English	4 units	Natural Science	1 to 2 units
United States History and Social Science	1 to 2 units	Electives	3½ to 7½ units
Mathematics	3 units[1]	(Total)	16 units

[1] The 3 units of Mathematics must include:

Algebra	1½ units
Plane and solid Geometry	1 unit
Trigonometry	½ unit

or the equivalent of these in integrated courses.

Engineering students are required to have at least 450 on the Mathematics portion of the Scholastic Aptitude Test or a satisfactory score on a locally administered Mathematics examination.

DEFICIENCIES IN ADMISSION TO CANDIDACY FOR THE DEGREE OF BACHELOR OF ARTS, BACHELOR OF SCIENCE, OR BACHELOR OF SCIENCE IN ENGINEERING

Admission with deficiencies in Mathematics and in Foreign Language may be granted to applicants whose records are otherwise acceptable.

Removal of deficiencies before registration for the first semester is desirable, but all deficiencies must be removed before registration for the third semester.

A student provisionally admitted without foreign language units must take two elementary language courses without credit to satisfy this deficiency.

ADMISSION OF UNCLASSIFIED STUDENTS

An unclassified student is one who is earning University credit, but is not working toward the completion of a degree program at the University.

Students in this category must meet the same entrance requirements as regular students in order to earn University credits. As a rule, unclassified students must have the approval of the head of the department in which the courses are to be taken, to register for these courses.

Such students must abide by the same regulations as regular students. If, at a later date, an unclassified student changes to regular status, the credits earned while he was unclassified will be accepted only if he has satisfactorily completed the proper prerequisites.

ADMISSION OF SPECIAL STUDENTS

Students who do not wish to earn degree credit because of special reasons may enroll as special students without having to meet the usual entrance requirements, such as providing scores from the Scholastic Aptitude Test and meeting transfer student qualifications. They will be admitted on the following basis:

1. The student must be 21 years of age or over.
2. The student must be qualified for the course or courses for which he wishes to enroll, either by previous academic work or by experience in the military or business worlds.
3. The student must understand at the time of his registration that no work undertaken while he is classified special student may ever be counted toward a degree.
4. The student must understand that he may not deprive a degree student of a place in class.

ADMISSION OF SPECIAL STUDENTS IN TEACHER EDUCATION

Students who hold a bachelor's degree and plan to work toward a teaching certificate or certificate renewal must meet the standards set by the University for admission as well as the requirements of the Department of Education. Students should consult with the Chairman of the Department of Education for further details.

REGISTRATION FOR AUDITORS

Any student eligible for admission may register for any class for audit. The fees are the same as for classes taken for University credit.

The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit. They are, however, expected to attend class regularly. Notation of an audited class on the student's permanent record is made, but no grade will be given.

Adding or dropping an audit course is governed by the same procedures as adding or dropping a course for credit, and is processed in the same way through the Registrar's Office.

EXCEPTIONS TO ADMISSION REQUIREMENTS

Exceptions to admissions requirements are made only by the Committee on Admissions of the University.

VETERANS AND WAR ORPHANS EDUCATION

The University provides educational opportunities for veterans, war orphans, and children of totally disabled service-connected veterans. Those seeking government educational benefits generally must enroll for a minimum of 14 semester hours in order to receive full subsistence. Routines involving letters of eligibility, interruption of training, and the like are handled by the University through the Registrar's Office. Technical questions are referred to Mecklenburg County Veterans Service Office, 720 East Fourth Street, Charlotte; telephone number 333-8616.

Before the time of registration, each veteran or war orphan who wishes to enter the University should:

1. Make application for admission following University procedures.
2. Make application through the local V.A. or Veterans Service Office for a Certificate of Eligibility and Entitlement.

COLLEGE ENTRANCE EXAMINATION

All candidates for admission will be required to present satisfactory scores on the Scholastic Aptitude Test of the College Entrance Examination Board.

Arrangement for the tests is the responsibility of the applicant and should be made with the College Entrance Examination Board, Post Office Box 592, Princeton, New Jersey, as early as possible, preferably seven to eight weeks before the test date. Early registration allows time for clearing up possible irregularities which might otherwise delay the reports.

The Scholastic Aptitude Test will be given at 8:30 in the mornings, while the afternoons, beginning at 1:30, are reserved for not more than three Achievement Tests on any one date, or not more than any two Achievement Tests if the Writing Sample is being taken that day.

The *Bulletin of Information,* with application blanks, distributed without charge by the College Entrance Examination Board, will be sent to all secondary schools that present candidates for the tests. The applications may be used for

any College Board administration involving the SAT, Achievement Tests, and the Writing Sample. Booklets describing the tests and giving sample questions, explanations and answers, and score interpretation booklets for counselors and students are distributed in quantity to secondary schools without charge.

For students returning from the Armed Services or who find it impossible or difficult to take the Scholastic Aptitude Test on one of the regularly scheduled dates, the University provides for institutional administrations of the test. Further information may be obtained from the Counseling Center of the University.

ADVANCED PLACEMENT COURSE CREDIT

Any student may apply for course credit in appropriate subjects if he has had an Advanced Placement Course in secondary or preparatory school and has received a score of four or five on the Advanced Placement Test. Grades of three will be granted credit provided that the departmental chairmen concerned approve. The advanced placement privilege gives students a wider range of course selection and may reduce the amount of time required to earn a degree.

CREDIT BY EXAMINATION

A student may pass a specially prepared examination and receive credit for a university course without having to do the normal course work. The examination will be designed by the appropriate department and will be administered normally by the Counseling Center. Credit by examination will carry no quality points, and failures on such an examination will incur no quality-point penalty. A department may allow a student to take examinations for courses not then offered on the Charlotte campus, if it deems it appropriate to do so.

PASS-NO CREDIT OPTION

Every student will be permitted during his four undergraduate years to select a total of four courses in which he shall receive an evaluation of (H) "honors," (P) "pass," or (N.C.) "no credit." Only one such course will be selected

during an academic year. Every course in the University is offered on this basis, except those taken by a student for departmental credit toward his major, and those specifically designated as all-University degree requirements. Option for this system must be made at the time of registration for the course, and it is understood that students are expected to fulfill all of the normal obligations in selected courses. Although units completed with "honors" or "pass" will count toward graduation, they will not be reckoned as part of the grade-point average.

This option is designed to encourage curiosity, exploration, and experimentation in areas where a student has strong interests, but little or no previous experience.

The student must declare his intention to take a pass-no credit option by the end of the add-drop period in the fall.

ACADEMIC REGULATIONS

GRADING

The unit of measurement of university work is the semester hour. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour.

Letters are used to indicate the quality of work done. Each letter carries a quality point value for each semester hour of work attempted. The meaning of each letter with its accompanying quality point factor is:

Letter	Description	Quality Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	0
W	Withdrawal	0

QUALITY POINT RATIO

A student's quality point ratio at the University of North Carolina at Charlotte is determined by multiplying the number of quality points for each grade by the number of hours received in that course and adding all accumulated quality points together, then dividing by the total number of hours the student has attempted, except those for which the student has received a grade of W. In computing the quality point ratio, only those credits attempted at one of the campuses of the University of North Carolina are included.

GRADE OF I

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not completed all the work in the course. The missing work must be completed during the next semester in residence, but no later than twelve months after the end of the term in which the I was assigned. If the I is not removed during the specified time, a grade of F is automatically assigned.

GRADE OF W

No grade will be given for a course dropped on or before the last day to drop courses without grade evaluation. When a student withdraws from a course after that date, as indicated on the Academic Calendar, but before the end of a semester, and if in the opinion of his instructor he is passing at the time of withdrawal, he will receive the grade of W. Courses given the grade of W do not count as hours attempted. The time of withdrawal is the time the drop card is accepted by the Records Office.

WITHDRAWAL

Any student voluntarily leaving the University before the close of the term must withdraw officially. He initiates the withdrawal procedure by scheduling a conference with the Placement Officer. A student who is unable to appear

in person may notify the Records Office of his withdrawal by letter.

Any person who leaves the University before the close of a term without withdrawing officially or notifying the Records Office in writing will receive a grade of F in all courses for which he is registered.

ATTENDANCE

The instructional work of the University is designed for class attendance, and it is assumed that students will be present. Students who miss classes will be responsible for the work of those periods. A missed test may cost the student the advantage of a grade to be counted toward the final estimate since instructors are not required to give make-up tests.

No student may expect full credit unless he has at least attended 75 percent of the total class hours.

CLASSIFICATION OF STUDENTS

At the beginning of the fall semester regular students working toward a bachelor's degree are classified on the basis of minimum earned semester hours as follows: Freshman, 1-23 semester hours; sophomore, 24-51 semester hours; junior, 52-89 semester hours; senior, 90 or more semester hours.

REQUIREMENTS FOR CONTINUED ENROLLMENT

As a general rule, each student will be allowed to remain at the University of North Carolina at Charlotte for the first two semesters following his first enrollment, or until 30 semester hours have been attempted at this institution, whichever happens last.

As a general rule, the Summer Sessions at this institution shall be open to all students previously enrolled here, including students academically ineligible to continue during the regular academic year.

The following table will serve as a guide to help the student determine his eligibility to continue.

Hours of credit earned, including transfer credit:	Minimum Grade Point Average to Continue
0-29	1.10
30-59	1.30
60-89	1.60
90-109	1.80
110-and over	1.90

After the student has earned 60 semester hours, he is expected to make at least a 2.0 quality point ratio for each semester.

No student will be suspended from the institution at the end of any semester for which his quality point ratio is at least 2.20.

A student's quality point ratio is determined on the basis of the hours he has attempted at the University of North Carolina. However, the grade of "F" on the same course will not count against the student more than once.

There are procedures for the removal of academic suspension. That information is available from the Office of Admissions and Registration and from the office of the Vice Chancellor for Academic Affairs.

REQUIREMENTS FOR READMISSION

Students entitled to honorable dismissal and in good standing who were previously enrolled at the University of North Carolina at Charlotte, but who did not complete the previous semester at the University, should apply for readmission. If students have earned credits at another college or university since last attending the University of North Carolina at Charlotte, they must submit an official transcript of credit from that institution for consideration for readmission.

REGISTRATION FOR CREDIT

Registration for credit in any course is limited to the first week of a semester and the first three days of classes

of a summer term. No credit will be given to a student for a course unless he is properly registered for it.

COURSE LOAD

Five subjects of not less than fifteen semester hours total constitute a normal full semester program, but a student may register for less work. Any student carrying twelve or more semester hours will be considered a full-time student by the University. However, many outside agencies, such as the Veterans Administration, require more than the minimum of twelve semester hours.

Course load is dependent on two factors: the scholastic ability of the student as reflected by his scholastic record, and available study time. It is suggested that a student whose part-time employment totals 20 hours a week should not carry more than 10 semester hours. A student working 40 hours a week should not carry more than 7 semester hours.

ADDING OR DROPPING A COURSE

In order to add or drop a course after the registration period, a student must secure written permission from his advisor and complete the necessary procedure as prescribed by the Registrar's Office. No student will be permitted to add a course or change sections of a course after the first week of a semester or the first three days of classes in a summer term.

A student who withdraws from a course after the last day to drop courses without grade evaluation, but before the end of a semester, will receive a grade of W if in the opinion of his instructor he is passing at the time of withdrawal, and will receive a grade of F if in the opinion of his instructor the student is failing the course at the time of withdrawal. (See *Grade of* W, p. 40.)

ASSIGNMENT OF ACADEMIC ADVISORS

Each student entering the University of North Carolina at Charlotte is assigned an advisor. Usually the advisor will

be in the major field chosen by the student. However, advisors will be chosen from a special pool for those students who have not chosen a major field.

CHANGING OF DEGREE AND MAJOR

A student may change from one degree or one major to another with the approval of the chairman of the department of his new major and of the academic vice chancellor.

TRANSCRIPTS OF RECORDS

Upon request of the student, a transcript of academic credits earned at the University of North Carolina at Charlotte will be sent to any other college or university, provided that all accounts with the University have been settled satisfactorily.

Each student is entitled to one free transcript of his work regardless of how early in his academic career the request may be made. A student requesting an additional transcript should enclose one dollar for this service. Transcript request should be made to the Records Office at least one week before the transcript is needed.

PARKING

Regular parking is provided for faculty and students as outlined in the Student Handbook. A limited number of spaces are provided for visitors to the campus. Student and faculty automobiles must be registered with the University, and registration decals must be properly displayed.

STUDENT RESPONSIBILITY

Every student is responsible for the proper completion of his academic program, for familiarity with the University catalogue, for maintaining the grade average required, and for meeting all other degree requirements, including attendance at the commencement exercises at which he will

receive his diploma. His advisor will counsel him, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student deportment. He is responsible for maintaining communication with the University, by keeping on file with the Records Office at all times his current address, including ZIP Code, and telephone number.

Every student, while he is associated with the University, is expected to comport himself in campus and community life in a manner that will reflect credit upon himself and the University.

TUITION AND FEES

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student must pay a higher rate of tuition than a legal resident.

Tuition and fees are due and payable on the day of registration. Checks and money orders should be made payable to the University of North Carolina at Charlotte.

Students taking eight or more semester hours of work during a regular semester will be charged full tuition and fees. Students taking less than eight hours of work during a regular semester will be charged a prorated portion of tuition and fees as specified below:

	EACH SEMESTER	
	In-State Students	Out-of-State Students
Eight or More Semester Hours		
Tuition	$ 87.50	$350.00
General Fee	62.50	62.50
Total	$150.00	$412.50
Five to Seven Semester Hours		
Tuition	$43.75	$175.00
General Fee	31.25	31.25
Total	$ 75.00	$206.25

	Four or Fewer Semester Hours	
Tuition	$ 22.00	$ 87.50
General Fee	16.00	16.00
Total	$ 38.00	$103.50

No extra fees are charged for laboratory courses as such. However, an extra fee for individual music study is charged in the amount of $45.00 per semester for one hour credit.

The estimated average cost of books and supplies per semester is about $50.00. Beginning students in engineering may expect an additional cost of $50.00 to $60.00 for drawing instruments, slide rule, and supplies. Uniforms and supplies for nurses will cost approximately $100.00.

The University reserves the right to make, with the approval of the proper authorities, changes in tuition and other fees at any time.

ROOM AND BOARD

The following room and board options for two semesters are available:

Room and Board, 5 days—15 meals: $750.00

Room and Board, 7 days—21 meals: $800.00

The cafeteria will be available on Saturdays and Sundays to all residents not under a 7-day plan, on a cash basis.

Applications for housing are available by writing:

Dean of Students
The University of North Carolina at Charlotte
Post Office Box 12665
Charlotte, North Carolina 28205

A fifty-dollar deposit must accompany the application.

RESIDENCE STATUS FOR TUITION PAYMENT

1. *General:* The tuition charge for legal residents of North Carolina is less than for nonresidents. To qualify for in-state tuition, a legal resident must have maintained his domicile in North Carolina for at least

the six months next preceding the date of first enrollment or re-enrollment in an institution of higher education in this State.

2. *Minors:* The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

   A minor student whose parents move their legal residence from North Carolina to a location outside the State shall be considered to be a nonresident after six months from the date of removal from the State.

   For the purpose of determining residence requirements under these rules, a person will be considered a minor until he has reached his twenty-first birthday. Married minors, however, are entitled to establish and maintain their residence in the same manner as adults. Attendance at an institution of higher education as a student cannot be counted as fulfilling the six-month domicile requirement.

3. *Adults:* A person twenty-one years of age or older is eligible for in-state tuition if he has maintained continuous domicile in North Carolina for the six months next preceding the date of enrollment or re-enrollment, exclusive of any time spent in attendance at any institution of higher education. An in-state student reaching the age of twenty-one is not required to re-established residence provided that he maintains his domicile in North Carolina.

4. *Married Students:* The legal residence of a wife follows that of her husband, except that a woman currently enrolled as an in-state student in an institution of higher education may continue as a resident even

though she marries a nonresident. If the husband is a nonresident and separation or divorce occurs, the woman may qualify for in-state tuition after establishing her domicile in North Carolina for at least six months under the same conditions as she could if she were single.

5. *Military Personnel:* No person shall be presumed to have gained or lost in-state residence status in North Carolina while serving in the Armed Forces. However, a member of the Armed Forces may obtain in-state residence status for himself, his spouse, or his children after maintaining his domicile in North Carolina for at least the six months next preceding his or their enrollment or re-enrollment in an institution of higher education in this State.

6. *Aliens:* Aliens lawfully admitted to the United States for permanent residence may establish North Carolina residence in the same manner as any other nonresident.

7. *Property and Taxes:* Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the in-state tuition rate.

8. *Change of Status:* The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident student at the time of his first enrollment who, or if a minor his parents, has subsequently maintained a legal residence in North Carolina for at least six months, and (b) in the case of a resident who has abandoned his legal residence in North Carolina for a minimum period of six months. In either case, the appropriate tuition rate will become effective at the beginning of the term following the six-month period.

9. *Responsibility of Student:* Any student or prospective student in doubt concerning his residence status must bear the responsibility for securing a ruling by stating his case in writing to the admissions officer. The student who, due to subsequent events, becomes eligible for a change in classification, whether from out-of-state

to in-state or the reverse, has the responsibility of immediately informing the Office of Admissions of this circumstance in writing. Failure to give complete and correct information regarding residence constitutes grounds for disciplinary action.

10. *Adjustments:* Discretion to adjust individual cases within the spirit of these regulations is lodged in the Vice-President and Finance Officer of the University.

APPLICATION FEE

Applicants for admission are required to submit a $10.00 application fee with the application form. The fee is non-deductible and non-refundable.

LATE REGISTRATION FEE

A non-refundable fee of $10.00 will be charged for those registering after the designated registration period each semester.

GRADUATION FEE

Each member of the graduating class must pay a graduation fee of $10.00 at the time he applies for the degree. This fee includes the cost of the diploma and the rental of the cap and gown. No reduction of the fee is allowed for those receiving degrees in absentia.

STUDENT ACTIVITIES

A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to most athletic contests, dramatic productions, Union-sponsored activities, social and entertainment functions, and for subscriptions to the newspaper and literary magazine. The yearbook is provided free to all students taking eight or more semester hours of work each semester during the academic year. Other students may obtain a yearbook upon payment of $7.50.

REFUNDS

A student who officially withdraws from the University during the first two weeks of the semester will receive a

refund of the full amount paid less a registration fee of $20. After the first two weeks of a semester, no refund will be made.

In each summer session, a student who officially withdraws from the University during the first three class days will receive a refund of the full amount paid less a registration fee of $10. After the first three class days of the summer session, no refund will be made.

FINANCIAL AID

Financial assistance is available to University undergraduate students in several forms: scholarships, grants-in-aid, loans, and part-time employment. The University makes every effort within the limits of its available resources to encourage and assist students with seriousness of purpose to secure a University education. A financial problem should not deter a student from submitting an application for admission.

HOW TO APPLY:

The University of North Carolina at Charlotte participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. Together with other participants in CSS, the University subscribes to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial assistance are usually required to submit a copy of the Parents' Confidential Statement (PCS) form to the College Scholarship Service, designating the University of North Carolina at Charlotte as one of the recipients. The PCS should be submitted prior to May 15 in order to assure that it can be processed in time for an award to be made before Fall registration. The PCS form may be obtained from a secondary school, the College Scholarship Service, P. O. Box 176, Princeton, New Jersey 08540, or the Office of Financial Aids, the University of North Carolina at Charlotte.

Each applicant will be considered for all available types of financial aid—scholarships, grants-in-aid, loans, and employment. The University seeks to assign the kind of aid

best suited to the needs and qualifications of the applicant. In general, the awards are approved in amounts proportionate to the demonstrated need of the student, and his satisfactory record of achievement and school citizenship.

Renewal of financial aid is based upon a student's making a clearly satisfactory record. After enrollment, the student should make application prior to the month of April for financial aid in the next year.

As in the past, the State of North Carolina is making available this year a sum of money to be used for grants to deserving students.

LOANS:

The Emergency Loan Fund—Students may borrow up to $25 for 30 days. There is a $ .25 service charge, but no interest is charged on the loan. Students may borrow up to $100 for a year at an interest rate of 3 per cent per annum.

The National Defense Student Loan Fund is available at the University. Full-time students in need of financial assistance may borrow up to $1,000 each year for university-related expenses such as tuition, fees, books, and transportation. The interest rate is 3 per cent per annum, but no interest is charged while the student is enrolled for at least 8 semester hours at the University. Loans must be repaid within 10 years.

Federal Guaranteed Low Interest Loans are also available. This program is similar in most respects to the National Defense Student Loan program.

The Prospective Teachers Scholarship Loan Fund provides funds for prospective teachers each year. The loans are made in the amount of not more than $600. The fund is administered by the State Superintendent of Public Instruction, Raleigh, North Carolina. All scholarship loans are evidenced by notes which bear interest at the rate of 4 per cent per annum from September 1 following fulfillment by a prospective teacher of the requirements for a teacher's certificate based upon the bachelor's degree. Scholarship loans, together with 4 per cent thereon, may be cancelled by teaching one full year in North Carolina for each annual scholarship received. Consideration for a scholarship loan is given on the basis of the aptitude, purposefulness, scholarship, character, and financial need of the applicant. For detailed information about the program, write to Prospective Teachers Scholarship Loan

Fund, State Department of Public Instruction, Raleigh, North Carolina.

Other loan funds are made available by organizations and individuals. These include the A.A.U.W. Loan Fund, the Charlotte Kiwanis Club Loan Fund, the Lions Club Loan Fund, and the Rotary Club Loan Fund.

Application blanks and details on loan funds may be obtained from the Financial Aids Office, The University of North Carolina at Charlotte, Post Office Box 12665, Charlotte, North Carolina 28205.

SCHOLARSHIPS:

Alcoa Foundation
Alpha Chapter of Alpha Delta Kappa
Alpha Sigma Chapter of Delta Kappa Gamma
Altrusa Club of Charlotte
American Business Women—Carolina Heritage Chapter
American Business Women—Charlotte Charter Chapter
American Business Women—Mecklenburg Chapter
J. Murrey Atkins Scholarship
Brycie Baber Scholarship
Barnhardt Manufacturing Company
Bealer Wholesale, Inc.
Boone-Blair Scholarship Fund
Cannon Scholarship for Nursing
Carolina Yarn Association
Charlotte Association of Insurance Women
Charlotte Board of Realtors
Charlotte Business and Professional Women
Charlotte Civitan Club
Charlotte-Mecklenburg Unit—NCEA
Charlotte Panhellenic Congress
Charlotte Sales and Marketing Executives
Charlotte Woman's Club
Bonnie E. Cone Scholarship
Corporate Insurers
Daughters of the American Revolution—Mecklenburg Chapter
W. Cleveland Davis Scholarship
Eastern Airlines Management Council
Ernst & Ernst Achievement Scholarship
Executives' Secretaries, Inc.
Harry P. Harding, Scholarship
Housewares Club of the Carolinas

Jefferson Standard Foundation Scholarship
Junior Achievement
Kerley Scholarship for Nursing
Mr. H. F. Kincey
McEwen Scholarship
Pierre Macy Scholarship
Mr. & Mrs. James T. Meador
Mecklenburg Junior Chamber of Commerce
Mecklenburg County Medical Society
Mumaw Engineering
National Association of Accountants—Herbert Conner Scholarship
Nursing Honors Scholarship
Mr. & Mrs. Jesse W. Page
Pepsi Cola Bottling Company
Pilot Club of Charlotte
Price Waterhouse Foundation, Inc.
Cecil Prince Scholarship
Puette Scholarship
Refabco, Inc. Scholarship
Frank Sherrill Scholarship
Schoenith Scholarship-Loan
Servomation of Charlotte
Sheldon P. Smith Scholarship
Charles H. and Clara Stone Scholarship
Sprague Electric Company
A. K. Sutton Scholarship
Cliff Westbrook Scholarship
Earle Whitton Scholarship
Mr. and Mrs. J. L. Winningham
Women in Construction of Charlotte
Women's Allied Auxiliary of North Carolina Motor Carriers
Zonta Club of Charlotte

EMPLOYMENT:

The Office of Financial Aids assists the student in locating work during his undergraduate years as part of the program of financial assistance. The University participates in the Federal Work-Study program and often couples part-time work with scholarship or loan assistance to meet the financial need of a student.

HONORS

AWARDS

The Bonnie E. Cone Award is given annually to a freshman student who has demonstrated fine college spirit and made a significant contribution to college life.

The Bill Mitchell Award. Two members of the graduating class who have shown outstanding qualities of scholarship and leadership and maintained an attitude of unselfish interest in the welfare of their fellow students and of the University as a whole are selected for the award.

The Mathematics Award is given annually to the student whose achievement in mathematics during his freshman year is judged most outstanding.

The Chemistry Award is presented annually to the student with the highest scholastic average in freshman chemistry.

The James W. Grey Award is given annually to a student who has maintained an above average scholastic average while participating in programs of organized sports and physical fitness at the University.

The Charlotte Panhellenic Award. In considering young women for the Panhellenic Award, acceptance in the University Community is the chief factor. The candidate should be an exemplary student: in conduct, poised and gracious; in service, able and cooperative; in scholarship, superior and enthusiastic.

The Education Award is presented annually to two members of the graduating class who have shown qualities of leadership and scholarship and who are planning to enter the teaching profession.

The Francis M. Fitzgerald Awards are presented annually by the Mecklenburg Chapter of The National Conference of Christians and Jews to the male and female student in the field of education who have, in their college life, most exemplified the ideals for which The National Conference stands—the brotherhood of man under the fatherhood of God.

The Wall Street Journal Award is given annually to a

graduating senior in a department of the University in which the Wall Street Journal was used during the year.

The Nursing Honors Scholarship, consisting of the amount of the tuition charge for legal residents of North Carolina for one semester of the junior year at the University of North Carolina at Charlotte, is awarded to the student who has the highest cumulative quality point ratio at the end of the sophomore year of all those students enrolled in the program leading to a B.S. degree with a major in Nursing.

The Student Government Award is to be awarded annually by the Student Legislature to the student at the University of North Carolina at Charlotte who has most exemplified the ideal of unselfish dedication to student government and the welfare of his fellow students during the current year.

DEAN'S LIST

The Dean's List is a record of all students whose academic record merits special recognition from the University. In order to qualify for the Dean's List, a student must take a full program of five subjects (at least fifteen semester hours of work) and maintain a quality point average of at least 3.00 (a grade of B) with no grade lower than a C.

COMMENCEMENT MARSHALS

The juniors who have the highest scholastic averages are honored by being named Commencement Marshals. The marshal who has the best academic record is designated Chief Marshal.

WHO'S WHO

Students are selected for *Who's Who Among Students in American Universities and Colleges* on the basis of scholarship, citizenship, participation and leadership academically and extracurricularly, and, in general, their potential future usefulness to society.

V. DEGREES

DEGREES OFFERED

Bachelor of Arts (B.A.):

- Biology
- Business Administration
- Chemistry
- Economics
- English
- French
- Geography
- History
- Mathematics
- Philosophy
- Physics
- Political Science
- Psychology
- Sociology
- Spanish

Bachelor of Science (B.S.):

- Accounting
- Biology
- Chemistry
- Mathematics
- Nursing

Bachelor of Science in Engineering

DEGREES WITH DISTINCTION

Each of the preceding degrees is awarded *with high honor,* when the graduate's quality point ratio is 3.80 or more, or *with honor,* when his quality point average is 3.40 or more, but less than 3.80.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

The degree of Bachelor of Arts is offered with majors in the following fields: Biology, Business Administration, Chemistry, Economics, English, French, Geography, History, Mathematics, Philosophy, Physics Political Science, Psychology, Sociology, and Spanish.

COURSE REQUIREMENTS

The University of North Carolina at Charlotte has a minimum number of required courses to give the student maximum freedom in selection.

Following are the required courses:

Subject	Semester Hours Required
English	6
Mathematics Foreign Languages (Option of either Mathematics or* Foreign Language)**	6
Natural Science (One year of either Biology, Chemistry, Geography 101, Geology, Physics, or Psychology 201. Psychology 201 may be offered as a Natural Science or as a Social Science, but not as both.)	8
Social Science (To be selected from Anthropology, Economics, Geography 102, 201, or any 300 level Geography course, History, Philosophy, Political Science, Psychology, Religion, or Sociology.) A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.)	6
Humanities (To be selected from Art Appreciation, Art History, Literature, Music Appreciation, Philosophy or Religion. A course in Philosophy or Religion may be offered as a Humanity or as a Social Science, but not as both.)	6

* A course in Logic may be substituted for one course in Mathematics. The rest of a student's course work is under the advisement of his department.

** Or proficiency in Language equivalent to completion of the fourth semester. This is to be determined by the score on the Language Placement Test.

Total required: a minimum of 120 hours. For the number of hours in the major department, see the requirements of that department.

QUALITY POINT REQUIREMENTS

In all courses attempted at the University, a minimum overall quality point average of 2.00 is required.

In all courses in the major department, a minimum overall quality point average of 2.00 is required.

COURSE LEVEL REQUIREMENT

Junior and Senior students are required to have the consent of their major department to enroll in any course below the 300 level, not required in their degree program.

RESIDENCE REQUIREMENTS

The minimum residence requirement for a Bachelor's Degree at the University of North Carolina at Charlotte is that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University. Exception to either of these hour provisions may be made upon the approval of the student's major department in consultation with the department offering the course or courses in question and with the approval of the Vice Chancellor for Academic Affairs.

Course work taken in residence shall be construed to mean course work offered by the University of North Carolina at Charlotte and taken on the Charlotte campus.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science is offered with majors in the following fields of study: Accounting, Biology, Chemistry, Mathematics, and Nursing. The minimum requirements are the same as those for the degree of Bachelor of Arts.

FOREIGN LANGUAGE REQUIREMENTS

I. If a student elects the foreign language option, he is expected to achieve and demonstrate proficiency in a language other than English. Proficiency must at least equal that obtained by successful completion of 202 language courses.

A student who presents four high school units in the same foreign language will be presumed to have satisfied the foreign language option of the general degree requirements, even though he receives no university credit in that language.

The student who presents two units in a given language for entrance and who, by placement test, is found capable of enrolling in the 201 course in the same language, can satisfy the general degree requirement by successfully completing the 201 and 202 courses in that language.

The student who, on the basis of placement results, is advised to repeat the elementary course in the language presented for entrance may:

(1) Take the elementary courses in the same language without credit, and go on to complete the 200 level courses for credit and for satisfaction of the general degree requirement.

(2) Take elementary courses in another foreign language for elective credit. However, he must still complete the 200 level courses if he wishes to use the foreign language option to meet the general degree requirement.

The 200 level courses in literature, English or foreign, because of their literary content, are courses in the humanities. They will be accepted to meet the group requirement in that area provided they are not used to satisfy the general degree requirements in language.

A student provisionally admitted with foreign language units must take two elementary language courses without credit to satisfy this deficiency.

II. *Transfer Student.*

A. A student transferring to The University of North Carolina at Charlotte with two or more years of college work in an ancient or modern language not taught at the University, with a grade of at least C in each course, will be deemed to have fulfilled his foreign language requirement, provided he has completed satisfactorily two years of high school foreign language.

B. Students transferring from other colleges will take language placement tests in the language they intend to continue at the University, and they will be advised to register for the course for which they are best fitted according to their placement test scores, for best results in their language sequence. They may not, however, receive credit again for courses the equivalent of which have already been accepted for transfer credit.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Majors in: Electrical Engineering and Mechanical Engineering.

The minimum residence requirement for a Bachelor of Science in Engineering Degree at the University of North Carolina at Charlotte specifies that a student must earn the last 30 semester hours of credit at the University. The last 12 semester hours of the work in his major field must be earned at the University. Exception to either of these hour provisions may be made upon approval of the student's major department in consultation with the department offering the course or courses in question and with the approval of the Vice Chancellor for Academic Affairs.

Course work taken in residence shall be construed to mean course work offered by the University of North Carolina at Charlotte and taken on the Charlotte campus.

COURSE REQUIREMENTS:

English 101 and 102	6
Humanities and Social Science*	21
Mathematics 104, 141, 142, 241, and 242	19
Chemistry 101, and 102	8
Economics 201	3
Physics 221, 231, 241, and 251	10
Engineering 101, 102, and 251	5
Engineering Mechanics 211 and 212	6
Electrical Engineering 211 and 212	6
Mechanical Engineering 311	3
Major Option Courses*	28
Minor Option Courses*	15
	130

* For specific details of the requirements in the Humanities and Social Sciences and in the Major and Minor Options see pages 96-97.

SEMESTER HOUR REQUIREMENTS

Total required in Electrical Engineering or in Mechanical Engineering: 130 semester hours.

QUALITY POINT REQUIREMENTS

All courses attempted at the University: a minimum overall quality-point average of 2.00 is required.

All courses in engineering: a minimum overall quality-point average of 2.00 is required.

COURSE LEVEL REQUIREMENTS

Junior and Senior students must have the consent of the Engineering Department to enroll in any 100 or 200 courses not required in their degree program. The Engineering Electives, the Humanities and Social Science Electives, and the Technical or Humanities Electives will ordinarily consist of sequences of related courses and are subject to the prior approval of the Engineering Department.

SECOND BACCALAUREATE DEGREE

A student earning his first baccalaureate degree at the University of North Carolina at Charlotte may be awarded a second baccalaureate degree either simultaneously with or subsequent to the first provided that

1) An application for the second degree is filed by the date specified in the University calendar and is approved by the Vice Chancellor for Academic Affairs and the Department Chairman of the major department for the second degree.
2) The second degree is in a different major from the first.
3) All requirements for the second degree are met.
4) The total semester-hours earned are at least 24 semester-hours beyond those applied to the first degree.

A transfer student holding a baccalaureate degree from another institution may be awarded a second baccalaureate degree at the University of North Carolina at Charlotte by meeting the residence requirements in addition to the four requirements above.

PREPARATION FOR PROFESSIONAL SCHOOLS

Students may begin preparation at the University of North Carolina at Charlotte for a number of professional careers. Depending upon the professional school's requirements the student may wish to take a degree at the Uni-

versity of North Carolina at Charlotte or to transfer after one, two, or three years.

Preparation for the following programs is offered:

Dentistry, Journalism, Law, Medicine, Pharmacy, and Social Work.

The student who plans to enter a professional school is advised to plan his program so that general requirements for the Bachelor of Arts or Bachelor of Science degree is met in addition to the requirements for the professional program being considered. The student planning to attend a professional school should inform his advisor of his plans. The student should become familiar with the requirements of the school which he plans to attend.

Dentistry and Medicine. The composite requirements for entrance to most Medical and Dental schools in North Carolina, South Carolina, Georgia, Tennessee and Virginia are as follows:

Biology	8 hours
Inorganic Chemistry	8 hours
Organic Chemistry	8 hours
Quantitative Analysis	4 hours
(Required by half the schools surveyed)	
Physics	8 hours
English	12 hours
Foreign Language	9-12 hours
(N. C. and S. C. only)	

Journalism. A number of institutions accept graduate students in journalism with the background of a liberal arts degree. Other institutions accept students transferring to an undergraduate program at the junior year with a liberal arts background.

Law. The University suggests that the student planning to enter law school have an understanding of the value of English literature and composition, American history, psychology, logic and ethics, political science, economics, government, accounting, mathematics, sociology, Latin and modern languages. Preparation should include comprehension and expression in words, critical understanding of human institutions and values, and creative power in thinking. Thus, any of several majors with wisely selected electives might provide the broad educational background needed.

Pharmacy. Students planning to seek a Bachelor of Science in Pharmacy degree may spend either one or two years at the University of North Carolina at Charlotte before transferring to the University of North Carolina at Chapel Hill, where a total of five years, including those at Charlotte, is required for the degree.

For the student planning to spend one year at the University of North Carolina at Charlotte, the following courses are required: English 101, 102; Modern Western Civilization 101, 102; Foreign Language (two semesters); Mathematics 103, 104; Chemistry 101, 102; and Physical Education (two semesters).

For the student planning to spend two years at the Charlotte campus, the following additional courses are required: English 201; Economics 201; Physics 101, 102; Chemistry 201, 202; Biology 101, 202; Physical Education (two semesters); Foreign Language (two semesters).

Social work. For the student planning a career in social work, a major either in psychology with related work in sociology or a major in sociology with related work in psychology is recommended. Whichever major is chosen, the following courses should be included: Psychology 303 (Social Psychology), Psychology 305 (Psychology of Personality), Psychology 307 (Abnormal Psychology), Sociology 302 (Social Problems), Sociology 323 (Community Organization of Social Services).

THE EVENING PROGRAM

The University administers the evening program as an integral part of its total program. Any course in the catalogue may be taught in the evening if there is sufficient demand for it. Each course offered in the evening is taught at the same academic level as in the day program and requires the same level of achievement.

For information concerning the evening program, write or call:

Director of Evening Program
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970

THE SUMMER SESSION

The Summer Session is designed to present courses of the same quality as those offered in the regular academic year. These courses—selected according to the needs of regular students, students transferring from other institutions, and students of the community—are presented in two terms consisting of six weeks each.

For detailed information on the Summer Session, write:

Director of Summer Session
University of North Carolina at Charlotte
P. O. Box 12665
Charlotte, North Carolina 28205

Telephone: 596-5970

VI. COURSES OF STUDY

COURSES OF STUDY

Following are courses offered by the University of North Carolina at Charlotte, listed under the department or academic area concerned. Under each department and academic area is given the following information:

The name of the department or area; the chairman and other faculty, with their rank; a statement, where required, of the general policies and programs of the department; a suggested degree program, where this is applicable to the area concerned; a list of the courses offered.

Courses are listed with a course number, the title of the course, the semester hours credit given in parentheses, prerequisites, if any, and a description of the subject matter of the course, with whatever requirements of class or laboratory hours are applicable. If no class hours are given, the number of class sessions per week is the same as the number of semester hours credit for the course.

Courses are in general numbered 100 to 199 for freshmen, 200 to 299 for sophomores, 300 to 399 for juniors, and 400 to 499 for seniors. However, prerequisites for each course must be consulted to determine the student's eligibility to take that course.

Where a suggested degree program is not listed by a particular department, the student must arrange his program in consultation with the department. However, every student should consult the department of his intended major to be certain that he is following an approved program which will enable him to progress logically and successfully to the conclusion of his degree program, and to fulfill the requirements both of the University and of the major department or professional sequence.

Students intending to teach should consult both the major department and the Department of Education.

ART

(See Fine Arts)

BIOLOGY

Professors Hildreth, *Chairman* and Distinguished Professor, Hechenbleikner; Associate Professor Matthews; Assistant Professors Hogan, Menhinick; Instructors Burnside, Edwards.

A major in Biology leading to the B.A. degree consists of 32 semester hours in Biology. Candidates are required to complete Biology 101, 201, 202, 411, Chemistry 101 and 102. Related work will consist of at least 16 semester hours in no more than two departments as approved by the Department.

A major in Biology leading to the B.S. degree consists of 40 hours in Biology. In addition to the requirements for the B.A. degree it is recommended that the candidate for the B.S. degree take Chemistry 203 and 204 (Organic Chemistry), Mathematics 141 or 221, at least one course in Geography or Geology and two in Physics.

To partially fulfill the general degree requirements of the University a student must successfully complete six hours in Mathematics or six hours in a foreign language (through the 202 level). The Department of Biology recommends that every major complete Mathematics 103 and 104 (or 101 and 102). In addition the Department of Biology recommends that the candidate show a proficiency through the second-semester-freshman level in a foreign language either by completion of courses 101 and 102 or by achieving a satisfactory score on an appropriate test. Students contemplating attending graduate school are strongly advised to gain a proficiency in French, German, or Russian.

Suggested Curriculum for Bachelor of Arts Degree in Biology

FRESHMAN YEAR

Chemistry 101	4	Chemistry 102	4
English 101	3	English 102	3
Math 103 (or 101)	3	Math 104 (or 102)	3
Electives (Hum., S.S., For. Lang.)	6	Biology 101	4
		Electives (Hum., S.S., For. Lang.)	3
	16		17

SOPHOMORE YEAR

Chemistry 203	4	Chemistry 204	4
Biology 202	4	Biology 201	4
Electives (Hum., S.S., For. Lang.)	6-9	Electives (Hum., S.S., For. Lang.)	6-9
	14-17		14-17

JUNIOR YEAR

Biology Electives	8	Biology Electives	8
Non-Biology Electives	6-9	Non-Biology Electives	6-9
	14-17		14-17

SENIOR YEAR

Biology Electives	4	Electives	15
Non-Biology Electives	9-12		
Biology Seminar	1		
	14-17		

Suggested Curriculum for Bachelor of Science Degree in Biology

Courses during the first four semesters are the same as those for the B.A. degree.

JUNIOR YEAR

Biology Electives	8	Biology Electives	8
Physics 101	4	Physics 102	4
Non-Biology Electives	3	Non-Biology Electives	3
	15		15

SENIOR YEAR

Biology Electives	12	Electives	15
Biology Seminar	1		
Non-Biology Electives	3		15
	16		

101. INTRODUCTORY BIOLOGY. (4) The introductory course is designed to acquaint the student with the fundamental principles of life. The molecular and cellular basis of biology is stressed, with emphasis on the following: matter and energy, protoplasm, cell structure, cell physiology, cell reproduction, genetics and concepts of evolution. Three lecture hours and one laboratory period of three hours a week.

201. PLANT BIOLOGY. (4) Prerequisite: Biology 101. An introduction to the morphology, function, reproduction, phylogeny, and ecology of plants. Three lecture hours and one laboratory period of three hours a week.

202. ANIMAL BIOLOGY. (4) Prerequisite: Biology 101. An introduction to the morphology, function, development, phylogeny, and ecology of the principal invertebrate and vertebrate types. Two lecture hours and two laboratory periods of two hours a week.

203. MICROBIOLOGY. (4) Prerequisite: Biology 101. A study of the microscopic plants and animals stressing fundamentals of

morphology, physiology, culture methods and methods of control. Three lecture hours and one laboratory period of three hours a week.

204. HUMAN ANATOMY AND PHYSIOLOGY. (4) Prerequisite: Biology 101. A course stressing the basic fundamentals of the anatomy and physiology of the human body as an integrated unit. Three lecture hours and one laboratory period of three hours a week.

206. INVERTEBRATE ZOOLOGY. (4) Prerequisite: Biology 101. A study of representative invertebrate organisms. Phylogeny, morphology, physiology, ecology, economic and biological significance of invertebrates are considered. Three lecture hours and one laboratory period of three hours a week.

300. ANIMAL PHYSIOLOGY. (4) Prerequisite: Biology 202. Functional integration of tissues, organs, and organ systems for maintenance of homeostatis. Three lecture hours and one three hour laboratory a week.

301. PARASITOLOGY. (4) An introduction to parasites with emphasis on the morphology, life cycles, ecology, taxonomy, and economic importance of selected forms. Three lecture hours and one laboratory period of three hours a week.

302. PRINCIPLES OF GENETICS. (4) Prerequisite: Biology 201 or 202. A course designed to acquaint the student with basic concepts of heredity. Diverse organisms are considered in order to gain an understanding of the principles of classical and molecular genetics. Three lecture hours and one laboratory period of three hours a week.

303. COMPARATIVE VERTEBRATE ANATOMY. (4) Prerequisite: Biology 202. Comparative studies of phylogeny and functional anatomy of vertebrates are emphasized. Three lecture hours and one laboratory period of three hours a week.

304. PLANT SYSTEMATICS. (4) Prerequisite: Biology 201. A study of the classification, phylogenetic relationships, and structure of the seed plants. Special emphasis is placed upon their biological relationships by means of field trips and by the collection and identification of specimens collected in the local environment. Two lecture hours and two laboratory periods of two hours each a week.

305. ECOLOGY. (4) Prerequisite: Biology 201 or 202. The fundamental principles of the relationships of plants and animals to each other and the environment are discussed and demonstrated by trips in the local area. Two lecture hours and two laboratory periods of two hours each a week.

306. CYTOLOGY. (4) Prerequisite: Biology 201 or 202. A study of the organization of cells stressing the morphological and

chemical make-up of cellular constituents and their interaction. Two lecture hours and two laboratory periods of two hours each a week.

307. GENERAL ENDOCRINOLOGY. (4) Prerequisite: Biology 205. A survey of endocrine glands emphasizing their role in the maintenance of normal body functions. Three lecture hours and one laboratory period of three hours a week.

308. CELL PHYSIOLOGY. (3) Prerequisite: Biology 300 and Chemistry 203. A study designed to acquaint the student with the fundamental physiochemical properties of cells. Three lecture hours a week.

309. HUMAN GENETICS. (3) Prerequisite: A course in general biology. A study of the inheritance of physical and mental characteristics in man. Effects of mutation, selection, migration, and environment are considered. Three lecture hours a week.

325. FIELD BIOLOGY FOR ELEMENTARY SCHOOL TEACHERS. (4) Prerequisite: Consent of department. Ecological aspects of plant and animal distribution, the importance of conservation of natural resources, and plant and animal identification will be stressed. Three lecture hours and three laboratory hours a week.

326. FIELD BIOLOGY FOR SECONDARY SCHOOL TEACHERS. (4) Prerequisite: Consent of department. The role of soils, water, and climate on plant growth and distribution will be studied. Plant succession and its effect on animal distribution, identification of plants and animals, and life histories of selected species will be stressed. Demonstrations of biological methods relating to natural history will be given. Three lecture hours and three laboratory hours a week.

352. VERTEBRATE PALEONTOLOGY. (4) Prerequisite: Geology 202 or Biology 101. (This course is the same as Geology 352.) Evolution of vertebrate animals from the first fishes to man. Three lectures and one laboratory period of two hours a week.

401. HISTOLOGY. (4) Prerequisite: Biology 202. A microscopic study of vertebrate tissues and organs. Techniques of preparing tissues for study are also included in this course. Two lecture hours and two laboratory periods of two hours each a week.

402. EMBRYOLOGY. (4) Prerequisite: Biology 202. Studies in the gametogenesis, fertilization, early embryology and organogenesis of vertebrates. Two lecture hours and two laboratory period of two hours each a week.

403. RADIOISOTOPE TECHNIQUES. (4) Prerequisite: two semesters of chemistry. The use of radioisotopes in science,

properties of atomic particles, instrumentation, safety precautions, and radioisotope labeling. Two lecture hours and four laboratory hours a week.

410. INVESTIGATIONS IN BIOLOGY. (One to four hours) A course designed to allow the senior Biology major to initiate a research problem in his field of interest. All participants must have an academic standing of 3.5 in the major field or permission of the department.

411. SEMINAR. (1) A course required of all Biology majors, to be taken during the fall semester of the senior year. Pertinent topics in the field of Biology, and reports on original research are discussed. Students are required to act as the discussion leaders.

450. SPECIAL TOPICS IN BIOLOGY. (2 to 4 hours credit) May be repeated for credit. Prerequisite: Consent of department. Used to comply with requests for special topics and advanced studies in biology.

BUSINESS ADMINISTRATION

(See Economics and Business Administration)

CHEMISTRY

Professors Burson, *Chairman* and Charles H. Stone Professor of Chemistry, Kuppers, Norman; Assistant Professors Crosthwaite, DuBois, Gibson.

A major in chemistry leading to the B.A. degree consists of 28 semester hours of chemistry among which must be included Chemistry 101, 102, 203, 204, and 303. Related work must include Mathematics 141, 142 and Physics 221, 231, 251, and 252. German is the recommended foreign language of the B.A. degree.

A major in chemistry leading to the B.S. degree consists of 44 semester hours of chemistry among which must be included Chemistry 101, 102, 203, 204, 301, 302, 304, 401, 491 and 492. Twenty hours of related work in mathematics (Mathematics 141 and above) and physics must be completed. At least two years of German or two years of Russian are required for the B.S. degree.

Students planning to start careers as chemists with the baccalaureate degree and those who intend to prepare for graduate study in chemistry should pursue the B.S. degree.

The B.A. curriculum can be tailored to fit individual needs of those preparing for medical and dental schools, those considering graduate work in sciences closely related to chemis-

try, and those desiring a liberal education with concentration in chemistry and related natural sciences.

Students who complete a major in chemistry automatically meet the chemistry subject matter requirements, on the secondary level, for teacher certification in North Carolina. Students seeking teacher certification should consult a co-advisor in the Department of Education for detailed planning of their professional education.

The following are recommended course selections for the two degrees.

B.A. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 104**	3
History 101	3	History 102	3
German (Russian) 101	3	German (Russian) 102	3
	16 hrs.		16 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
English 201	3	English	3
Math 141	4	Math 142	4
German (Russian) 201	3	German (Russian) 202	3
		Elective	3
	14 hrs.		17 hrs.

5th Semester		*6th Semester*	
Chemistry 303	4	Chemistry	4
Physics 221	3	Physics 231	3
Physics 251	1	Physics 252	1
Math	4	Electives	7
German (Russian)	3		
	15 hrs.		15 hrs.

7th Semester		*8th Semester*	
Chemistry 491	1	Chemistry 492	1
Chemistry	4	Chemistry	4
Electives	10	Electives	10
	15 hrs.		15 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203.

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

B.S. DEGREE

1st Semester		*2nd Semester*	
Chemistry 101*	4	Chemistry 102*	4
English 101	3	English 102	3
Math 103**	3	Math 141	4
Math 104**	3	German (Russian) 102	3
German (Russian) 101	3	History 101	3
	16 hrs.		17 hrs.

3rd Semester		*4th Semester*	
Chemistry 203	4	Chemistry 204	4
Math 142	4	Math 241	4
Physics 221	3	Physics 231	3
Physics 251	1	Physics 252	1
German (Russian) 201	3	German (Russian) 202	3
	15 hrs.		15 hrs.

5th Semester		*6th Semester*	
Chemistry 301	4	Chemistry 302	4
Chemistry 303	4	Chemistry 304	4
Math 242	4	Electives***	9
English 201	3		
	15 hrs.		17 hrs.

7th Semester		*8th Semester*	
Chemistry 401	4	Chemistry 402	4
Chemistry 403	2	Chemistry 403	2
Chemistry 491	1	Chemistry 492	1
Math or Physics	3	Math or Physics	3
Electives	6	Electives	6
	16 hrs.		16 hrs.

* Students who can demonstrate to the Chemistry Department sufficient attainment in general chemistry may start with Chemistry 203.

** With permission of the Mathematics Department a freshman with high mathematical competence may initiate his study with Mathematics 141.

*** At least nine hours of the listed electives must be in humanities or social sciences.

101. GENERAL CHEMISTRY. (4) Prerequisite or corequisite: Mathematics 101, or Mathematics 103. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

102. GENERAL CHEMISTRY. (4) Prerequisite: Chemistry 101. Continuation of Chemistry 101 including qualitative analysis. Two lecture hours, one recitation hour, and one laboratory period of three hours per week.

203. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 102. Basic theories, principles, and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. Three lecture hours and one three hour laboratory period per week.

204. ORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 203. Continuation of Chemistry 203. Three lecture hours and one three hour laboratory period per week.

210. INORGANIC CHEMISTRY. (3) Prerequisites: Chemistry 101 and 102. Descriptive inorganic chemistry including acid-base and non aqueous solvent concepts. Three lecture hours a week.

301. PHYSICAL CHEMISTRY. (4) Prerequisites: Chemistry 102, Mathematics 241, Physics 231, 252. The application of classical thermodynamics and the phase rule to chemical equilibrium; electrochemistry; the kinetic theory of gases and elements of statistical mechanics applied to chemical processes; atomic and molecular structure interpreted in quantum mechanical terms. Three lecture hours and one laboratory period of three hours per week. (Credit for both 301 and 311 will not be given.)

302. PHYSICAL CHEMISTRY. (4) Prerequisite: Chemistry 301. Continuation of Chemistry 301. Three lecture hours and one laboratory period of three hours a week. (Credit for both 302 and 312 will not be given.)

303. QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 102 and satisfactory work in college mathematics and physics. Introductory course in quantitative analytical chemistry, including both volumetric and gravimetric procedures. Two lecture hours and two laboratory periods of three hours each a week.

304. ADVANCED QUANTITATIVE ANALYSIS. (4) Prerequisites: Chemistry 301, Chemistry 303. Continuation of Chemistry 303, involving more difficult methods including instrumental methods such as spectrophotometric, electroanalytical, and chromatographic techniques. Two lecture hours and two laboratory periods of three hours each week.

311. PHYSICAL CHEMISTRY. Prerequisite: Consent of the department. Same course as Chemistry 301 but taught without the laboratory. Three lecture hours a week. (Credit for both 301 and 311 will not be given.)

312. PHYSICAL CHEMISTRY. (3) Prerequisite: Chemistry 301 or 311. Same course as Chemistry 302 but taught without the laboratory. Theree lecture hours a week. (Credit for both 302 and 312 will not be given.)

401. ADVANCED INORGANIC CHEMISTRY. (4) Prerequisite: Chemistry 302. Theoretical inorganic chemistry including the application of physical-chemical principles to the study of inorganic systems. Laboratory work involving inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week.

402. ADVANCED ORGANIC CHEMISTRY. (4) Prerequisites: Chemistry 204, 303. Recent developments in organic chemistry. Laboratory techniques of organic chemistry with emphasis on qualitative organic analysis including instrumental methods. Two lecture hours and two laboratory periods of three hours each a week.

403. INDEPENDENT STUDY AND RESEARCH. (1 to 4) Prerequisites: Chemistry 204, 302, 304. Independent study and research. A senior project in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry, or biochemistry; introduction to research. Hours in consultation, library and laboratory to be determined.

411. ADVANCED PHYSICAL CHEMISTRY. (3) Prerequisites: Chemistry 301 or 241, Physics 311, Mathematics 242 (the latter may be taken concurrently). Topics selected from quantum chemistry and/or statistical thermodynamics. Three lecture hours per week.

491. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Discussion of recent developments in chemistry. Written and oral reports will be submitted.

492. CHEMISTRY SEMINAR. (1) Prerequisite: Senior standing. Continuation of Chemistry 491.

ECONOMICS AND BUSINESS ADMINISTRATION

Professors Palmer, *Chairman,* Wubben; Assistant Professors DeFelice,[1] Higgins, Rogers, Turner, Williams; Instructors Abdel-Khalik, Byarlay, Hinson, Guthrie (Part-time), Smith (Part-time), and Williamson (Part-time), Lecturer Trosch

MAJORS

The Division of Economics and Business Administration offers 3 undergraduate degree programs:

(1) A Bachelor of Science Degree in Accounting

(2) A Bachelor of Arts Degree in Business Administration.

(3) A Bachelor of Arts Degree in Economics.

[1] On leave, 1968-69.

The *General Degree Requirements* for the B.S. degree in Accounting, the B.A. degree in Business Administration and the B.A. degree in Economics are identical. These requirements are as follows:

English 101 and 102	6 hrs.
Mathematics 101 and 102	6 hrs.
Any Laboratory Science	8 hrs.
Social Science	6 hrs.
Humanities	6 hrs.

Courses from the following areas may be selected to satisfy the Social Science requirement: Economics, History, Psychology, Sociology, Geography and Political Science. Principles of Economics (Economics 201 and Economics 202) will satisfy six hours of the Social Science requirement *and is required* for all degrees in Accounting, Business Administration and Economics.

The Humanities requirement may be met by courses in Art, Literature, Music or Philosophy and Religion.

The Economics and Business Administration *core requirements* are identical for the B.S. degree in Accounting and the B.A. degree in Business Administration. These *core requirements* are:

Principles of Accounting (BAd 201 and 202)	6 hrs.
Probability and Statistics (Math 221 and 222)	6 hrs.
Industrial Relations (Econ. 305)	3 hrs.
Marketing (BAd 311)	3 hrs.
Financial Management (BAd 316)	3 hrs.
Managerial Economics (Econ 324)	3 hrs.
Cost Accounting (BAd 371)	3 hrs.
Business Law (BAd 380)	3 hrs.
Industrial Management (BAd 400)	3 hrs.

The *core requirements* for the B.A. degree in Economics are:

Principles of Accounting (BAd 201 and 202)	6 hrs.
Probability and Statistics (Math 221 and 222)	6 hrs.
Industrial Relations (Econ 305)	3 hrs.
Money and Banking (Econ 315)	3 hrs.
Price Theory (Econ 322)	3 hrs.
Macro-Economic Theory (Econ 323)	3 hrs.
International Economics (Econ 471)	3 hrs.
History of Economic Thought (Econ 477)	3 hrs.

The *concentration requirements* for each degree are:

B.S. in Accounting

Intermediate Accounting I (BAd 374)	3 hrs.
Intermediate Accounting II (BAd 375)	3 hrs.
Advanced Accounting (BAd 471)	3 hrs.

Auditing (BAd 475) ..... 3 hrs.
Income Taxation for Individuals (BAd 477) ..... 3 hrs.
Advanced Income Taxation (BAd 478) ..... 3 hrs.
Related Work in BAd or Econ ..... 3 hrs.

B.A. in Business Administration

Money and Banking (Econ 315) ..... 3 hrs.
Organization Theory (BAd 444) ..... 3 hrs.
Government and Business (Econ 480) ..... 3 hrs.

B.A. in Economics

Three of the following:
Marketing (BAd 311), Financial Management (BAd 316), Industrial Management (BAd 400), Organization Theory (BAd 444)
and

Three of the following:

Managerial Economics (Econ 324), Comparative Economic Systems (Econ 375), Public Finance (Econ 416), Government and Business (Econ 480)

Typical Program

B.S. in Accounting, B.A. in Business Administration and B.A. in Economics

FRESHMAN YEAR

English 101	3	English	3
Laboratory Science	4	Laboratory Science	4
Mathematics 101	3	Mathematics 102	3
Humanities	3	Humanities	3
Elective	3	Elective	3
	16		16

SOPHOMORE YEAR

Prin. of Econ. (Econ 201)	3	Prin. of Econ. (Econ 202)	3
Prob. & Stat. (Math 221)	3	Prob. & Stat. (Math 222)	3
Prin. of Accting (BAd 201)	3	Prin. of Accting (BAd 202)	3
Elective	6	Elective	6
	15		15

B.S. in Accounting
Junior and Senior Year

JUNIOR YEAR

Intermed. Acctg. (BAd 374)	3	Intermed. Acctg. (BAd 375)	3
Business Law (BAd 380)	3	Financial Mgt. (BAd 316)	3
Marketing (BAd 311)	3	Cost Accting (BAd 371)	3
Industrial Rel. (Econ. 305)	3	Elective[1]	6
Elective[1]	3		15
	15		

SENIOR YEAR

Advanced Accting (BAd 471)	3	Auditing (BAd 475)	3
Inc. Tax Accting (BAd 477)	3	Adv. Inc. Tax Acctg. (BAd 478)	3
Industrial Mgt. (BAd 400)	3	Managerial Econ. (Econ. 324)	3
Elective[1]	6	Related Work (BAd or Econ.)	3
	15	Elective[1]	3
			15

B.A. in Business Administration
Junior and Senior Year

JUNIOR YEAR

Financial Mgt. (BAd 316)	3	Marketing (BAd 311)	3
Cost Accting (BAd 371)	3	Industrial Rel. (Econ. 305)	3
Money & Banking (Econ. 305)	3	Business Law (BAd 380)	3
Elective[1]	6	Elective[1]	6
	15		15

SENIOR YEAR

Managerial Econ. (Econ. 324)	3	Industrial Mgt. (BAd 400)	3
Organization Theory (BAd 444)	3	Govt. & Business (Econ. 480)	3
Elective[1]	9	Elective[1]	9
	15		15

B.A. in Economics
Junior and Senior Year

JUNIOR YEAR

Price Theory (Econ. 322)	3	Macro Theory (Econ. 323)	3
Industrial Rel. (Econ. 305)	3	Money & Banking (Econ. 305)	3
Marketing (BAd 311)	3	Managerial Econ. (Econ. 324)	3
Elective[1]	6	Elective[1]	6
	15		15

SENIOR YEAR

History of Econ. Th't. (Econ. 477)	3	Public Finance (Econ. 416)	3
Organization Theory (BAd 444)	3	Comp. Ec. Systems (Econ. 375)	3
Industrial Mgt. (BAd 400)	3	Govt. & Business (Econ. 480)	3
Econ. 471	3	Elective[1]	6
Elective[1]	3		
	15		15

[1] A minimum of 6 hrs. of these electives must be taken from courses other than those offered in the Division of Economics and Business Administration.

BUSINESS ADMINISTRATION

201. PRINCIPLES OF ACCOUNTING. (3) A study of fundamental accounting principles, with emphasis on managerial uses of accounting data, and analysis of financial statements. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

202. PRINCIPLES OF ACCOUNTING. (3) Prerequisite: Business Administration 201. A study of basic accounting theory; corporate financing and reporting; financial planning; and an introduction to cost accounting. Three lecture hours and one laboratory period of two hours a week. The laboratory period is optional unless scheduled for an examination.

311. MARKETING. (3) Prerequisite: Economics 202. Analysis of the activities which direct the flow of goods and services from producers to consumers in modern economic systems; focuses on development of the student's ability to perceive and evaluate marketing problems and policies.

316. FINANCIAL MANAGEMENT. (3) Prerequisite: Business Administration 201. Principles and problems of business financing. Particular emphasis on financial planning and control.

371. COST ACCOUNTING. (3) Prerequisite: Business Administration 202. A study of cost determination and control. Includes procedures for job order, process and standard systems, and management uses of cost data. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

374. INTERMEDIATE ACCOUNTING I. (3) Prerequisite Business Administration 202. A study of accounting theory and concepts and their application to financial accounting. Three

lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

375. INTERMEDIATE ACCOUNTING II. (3) Prerequisite Business Administration 374. A continuation of Business Administration 374 with an emphasis on accounting problems peculiar to corporate and partnership organizations and governmental units. Three lecture hours, two laboratory hours. The laboratory period is optional unless scheduled for an examination.

380. BUSINESS LAW. (3) A study of the legal environment within which business operates, topics covered include contracts, sales, negotiable instruments, agency, partnerships, and corporations.

400. INDUSTRIAL MANAGEMENT. (3) Prerequisites: Economics 202 and Business Administration 202. The principles underlying the solution of problems in organization and operation of industrial enterprises. Emphasis placed on the management functions of planning, organizing, actuating and controlling business activity.

444. ORGANIZATION THEORY. (3) Prerequisite: Economics 202. An application of traditional and behavioral concepts to business organization and decision making. Primarily a study of the process of decision making in the business organization including the more modern feed back systems of group behavior.

471. ADVANCED ACCOUNTING. (3) Prerequisite: Business Administration 375. Special advanced accounting problems and reports including partnership formation and dissolution, installment sales, consignments, branch accounting, consolidated statements, statement of affairs, receiver's accounts, realization and liquidation reports, actuarial science, estates, and trusts. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

475. AUDITING. (3) Prerequisite: Business Administration 375. Auditing theory and practice with emphasis on public auditing. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

477. INCOME TAXATION FOR INDIVIDUALS. (3) Prerequisite: Business Administration 202. A study of federal and state income tax laws applying to individuals. The preparation of individual income tax returns is stressed in laboratory problems. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

478. ADVANCED INCOME TAXATION. (3) Prerequisite: Business Administration 477. A study of federal and state

income tax laws applying to partnerships, corporations, estates and trusts; and estate, gift, and inheritance taxes. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

479. ADVANCED ACCOUNTING PROBLEMS. (3) Prerequisite: Business Administration 471. Intensive study of principles and techniques involved in the solution of advanced accounting problems encountered in public accounting practice. Three lecture hours, two laboratory hours per week. The laboratory period is optional unless scheduled for an examination.

ECONOMICS

201. PRINCIPLES OF ECONOMICS. (3) The first semester of a one-year introductory course in Economics. Topics considered include the scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy.

202. PRINCIPLES OF ECONOMICS. (3) Prerequisite: Economics 201. The second semester of a one-year introductory course in economics. Topics considered include the operation of the pricing mechanism of a market economy, the industrial organization of our contemporary capitalistic economy, problems of economics concentration and of agriculture, the theory of income distribution, international economic relationships, and comparative economic systems.

305. INDUSTRIAL RELATIONS. (3) Prerequisite: Economics 202. Systematic analysis of the sociological, economic, and political forces affecting and affected by the work environment. Special emphasis on market structure, the small group, the legal environment, and union structure.

315. MONEY AND BANKING. (3) Prerequisites: Economics 202. The characteristics and functions of money in the modern economy. The operation of our banking system; monetary theory and policy.

322. PRICE THEORY AND INDUSTRIAL ORGANIZATION. (3) Prerequisite: Economics 202. A study of the manner in which prices are determined in various types of markets—competitive, monopolistic, oligopolistic, and monopolistically competitive—and of the characteristics of each. Consideration is given to the economics of the firm, and to the use of economic theory in making business decisions.

323. MACRO-ECONOMIC THEORY. (3) Prerequisite: Economics 322. An analysis of economic aggregates, primarily of

income determination. Special emphasis on the development and understanding of current macro-economic models and sector analysis.

324. MANAGERIAL ECONOMICS. (3) Prerequisites: Economics 202 and Business Administration 202. A consideration of economic problems of particular importance to business firms, with a view to using tools of economic analysis in managerial decision making.

375. COMPARATIVE ECONOMIC SYSTEMS. (3) Prerequisite: Economics 202. An institutional and theoretical approach to competitive economics. Includes an analysis of the Marxian theoretical system as well as a comparison of capitalism, socialism, and communism.

416. PUBLIC FINANCE. (3) Prerequisite: Economics 315. The revenue and expenditure problems of governmental units. Intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

471. INTERNATIONAL ECONOMICS. (3) Prerequisites: Economics 323 and Economics 315. The application of modern developments in price theory, employment theory, and monetary theory to international equilibrium, and world liquidity are also considered.

477. HISTORY OF ECONOMIC THOUGHT. (3) Prerequisite: Economics 323. The development of the great economic ideas of value, distribution, employment, etc., with special emphasis on the foundations of classic economic thought.

480. GOVERNMENT AND BUSINESS. (3) Prerequisite: Economics 202. A historical development of government regulation of business, utilizing the case study approach to develop an understanding of current philosophies and problems in this area.

EDUCATION

Distinguished Professor Miller; Associate Professor Hackney, *Acting Chairman;* Assistant Professors Nesbitt, Reavis, Whittacre

The Department of Education, within the framework of the liberal arts and science curricula, offers programs in elementary and secondary education which fulfill the requirements for North Carolina Class "A" teacher certification. Teacher education at the University of North Carolina at Charlotte is conceived as a cooperative enterprise of the entire faculty. The preparation of teachers is one of the important functions of this University.

The requirements of the program are coordinated with the requirements which must be met in a major field of concentration and the general requirements for the Bachelor's degree. Courses offered in the teacher education program may be taken for undergraduate credit and may also be applied toward a teaching certificate or certificate renewal.

A student who plans to teach outside of North Carolina is stronly urged to check certification requirements with the Department of Education before the end of his sophomore year so that he can plan his program appropriately.

Admission to the Education Program

Students interested in the Teacher Education Program should contact the Education Department during their Freshman year. Formal applications for admission to the Education Program normally should be filed with the Department of Education during the students' first semester of their sophomore year. Applicants must have earned at least a 2.0 grade point average, be interviewed by a member of the Department of Education, be in good health substantiated by a physical examination, and have completed Psychology 201. The Department of Education will notify each applicant of the action taken on his application. Each student accepted in the Education Program will be assigned to an advisor in the Department of Education who will coordinate his program in consultation with the major advisor. The Education advisor will confer with the student concerning long range planning of his program, opportunities in the teaching field, and North Carolina certification requirements. The progress of each student in the Education sequence is reviewed by the advisor each semester.

Students should consult with the Department of Education for further details.

Admission to Student Teaching

Applications for admission to Education 450 or 451 (Student Teaching) should be filed with the Department of Education during the semester preceding student teaching. For admission to Education 450 or 451 candidates must have above average scholastic grades, sound mental and physical health, good speech, the approval of the Department of Education, and the recommendation of the major department. The quality of scholarship in the teaching field or area of each candidate shall be at a level above that minimally required for graduation. The Department of Education will notify each applicant of the action taken on his application.

Prior to admission to student teaching, students must complete all other course requirements for the Bachelor's degree, including the Education sequence, unless circumstances warrant approval by the Department of Education. This approval may be obtained by making a written request to the Chairman of the Department of Education. A general orientation conference on student teaching will be held for all prospective student teachers during the semester preceding their student teaching. Prospective student teachers are expected to attend. The date of the conference will be posted on the Department of Education bulletin board.

Students should consult with the Department of Education for further details.

Block Schedule

The block schedule consists of the following courses:
Elementary—Education 304, 401, 450, and Psychology 301
Secondary—Education 304, 402, 451, and Psychology 302

All of the courses except Education 450, 451 are taught during the first eight weeks of the semester. The second eight weeks of the semester is devoted to student teaching (Education 450 or 451). At present the block schedule is offered only during the spring semester. Students planning to take Student Teaching (Ed 450, 451) in the Fall Term are limited to this course only. Therefore, it is necessary that they have all other block courses completed before the fall semester. Block courses may be taken individually as offered; This is especially advisable for those planning a January graduation.

Non Degree Students in Teacher Education

The status "Non Degree" in teacher education is applied to (1) students who hold a Bachelor's degree and are working toward a teaching certificate or certificate renewal, and (2) visiting students who are taking courses in the teacher education program with the approval of their resident institutions.

Non Degree students must meet the standards set by the University for admission as well as the requirements of the Department of Education, which include above average scholastic ability, sound mental and physical health, and good speech. The student who has obtained a degree at another institution and wishes to be certified by this institution will be required to take at the University of North Carolina at Charlotte a minimum of two courses in his major area, two courses in education, and student teaching. Under special circumstances, these requirements may be waived at the discretion of the department involved.

Students should consult with the Department of Education for further details.

National Teacher Examination

A candidate for an elementary or secondary school teaching certificate in North Carolina must file evidence that the National Teacher Examination has been taken before a certificate may be issued. Both common and teaching area examinations must be taken by the applicant. Students should consult with the Department of Education for further details.

Teacher Placement

The Placement Office in the Division of Student Affairs in cooperation with the Department of Education provides placement services for qualified graduates. All students in the Education program are urged to complete their credentials since it is common practice for school administrators to contact the University for prospective candidates.

Curriculum Materials Center

Located in the J. Murrey Atkins Library, the Curriculum Materials Center contains current textbooks and related curriculum materials representing all subject areas and grade levels taught in the public schools. The Center receives approximately sixty education and related periodicals. A vertical file containing non-catalogued education materials is an integral part of the Center. The library is a government document depository; thus federal government publications pertaining to education are available.

Psychological Testing Laboratory

The Psychology Department maintains a psychological testing laboratory in which students gain experience in the selection, administration, and evaluation of psychological and achievement tests. A library of literature on test instruments for student use is kept current.

Teaching Media

As part of the Education sequence, all students will be given laboratory experiences in teaching media. The latest audiovisual equipment and teaching media will be available for individual student familiarization. Instruction in the use, preparation and evaluation of teaching media as a functional aspect of teaching will be included.

		Semester Hours
	English 101 English 102 English 201 English 202 or 203 or 204	12
Speech and Theatre	Speech 101	3
Humanities	Fine and Applied Arts, Philosophy, Religion, and Foreign Language (See a, b)	6
Mathematics	Mathematics 101 and 102, *or* Mathematics 103 and 104 (See c, d)	6
Natural Science	Psychology 201 Physical Science Biological Science	12
Social Science	History 101 and 102. One course in at least two of the following: Anthropology, Economics, Geography, Political Science, Sociology	12
Health and Physical Education	Health 101 Physical Education 101	2
		53

a. If 6 hours of foreign language are used to meet the humanities requirement, only one course in mathematics is required.
b. Philosophy and religion may only be used to meet 3 hours of the requirement.
c. A course in logic may be substituted for one course in mathematics.
d. Elementary teacher candidates will take Math 101 or 103 and Math 403.

NOTE: The general degree requirements are presented as specific subject matter disciplines, but this does not preclude the meeting of the requirements through integrated courses. Adaptation to individual needs will be made by the Department of Education. The above represents a minimum degree program in general education in accordance with the STANDARDS AND GUIDELINES FOR THE APPROVAL OF INSTITUTIONS AND PROGRAMS FOR TEACHER EDUCATION, North Carolina State Board of Education.

Professional Education Sequence

Elementary

Sophomore or Junior Year	Semester Hours
Education 201 Introduction to Education	3
Psychology 202 Educational Psychology	3
Junior Year	
Education 303 Elementary Education I	3

*Senior Year—Block Schedule**

Education 304 Philosophy of Education 3
Education 401 Elementary Education II 3
Psychology 301 Child Psychology 3
(Spring semester of the senior year—first eight weeks)
Education 450 Student Teaching: Elementary 6
(Spring semester of the senior year—second eight weeks)
Total—24

Secondary

Sophomore or Junior Year

Education 201 Introduction to Education 3
Psychology 202 Educational Psychology 3

*Senior Year—Block Schedule**

Education 304 Philosophy of Education 3
Education 402 Methods of Teaching in the Secondary School) 3
Psychology 302 Adolescent Psychology 3
(Spring semester of the senior year—first eight weeks)
Education 451 Student Teaching: Secondary 6
(Spring semester of the senior year—second eight weeks)
Total—21

* Or as an individual course.

Course Requirements

Elementary

Candidates who plan to teach in elementary school will fulfill the following requirements:

(1) All required courses for graduation
(2) A major in one of the academic fields (a minimum of 27 semester hours). Elementary candidates majoring in Psychology must in addition have 18 hours in an academic discipline normally taught in the elementary school.
(3) Elementary Professional Education Sequence.
(4) Subject-matter requirements for teacher certification.

Course	Semester Hours
Art 201, 302	6
Education 301	3
English 303	2
Geography 101, 102 or equivalent	7
Health Education 101, 409	4
History 201, 202	6
Mathematics 403	3
Music 207, 307	6
Physical Education 101, 409	4
Political Science 200	3
Speech 101	3

Secondary

Candidates who plan to teach in secondary school will fulfill the following requirements:

(1) All required courses for graduation.
(2) A major in the academic field in which they plan to teach.
(3) Secondary Professional Sequence.
(4) Related work approved by the major department.
(5) Subject-matter requirements for teacher certification.

English 36
- Language 12
  (Grammar, composition, rhetoric, history and analysis of the English language, etc.)
- Literature 12
  (English and American Literature)
- Language and Literature Skills 6
  (Reading, interpretation of literature, oral and written exposition, the library, and journalistic writing)
- Electives from above areas 6

Mathematics 30
- Calculus and Analytic Geometry 9
- Algebra 6
- Geometry 3
- Electives in Mathematics 12

The algebra shall consist of one course in modern abstract algebra and one in linear algebra.

Modern Foreign Language 30
- Grammar, Composition, and Phonetics 9
- Literature 9
- Language Skills 6
  (Understanding, speaking, reading, and writing)
- Literature, History and Civilization of being studied 6
  (The 30-hour requirement in a language assumes that one has had two or more high school units in that language when entering college.)

Science 48
- (1) Common Foundations 24
  - Mathematics 6
  - Six semester hours each from three of the following: 18
    Biology

Chemistry
Physics
Earth Science

(2) A concentration in one area 20
Biology
Chemistry
Physics
Earth Science

(3) Electives 4

Certification in the individual science areas should give depth sufficient to assure reasonable competence as a teacher in the subject of concentration. A program for certification in a particular area (Biology, Chemistry, Physics, or Earth Science) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours)

Social Science 42

(1) History—American and World 21

(2) From three or more of the following 21
(There should be about equal emphasis on all areas chosen)
Anthropology
Economics
Geography
Political Science
Sociology

A program for certification in individual areas (Anthropology, Economics, Geography, History, Political Science, or Sociology) should comprise approximately 20 per cent of a teacher's undergraduate curriculum. (24 semester hours)

History 30

Certification in History (Secondary School Teaching) is made possible by satisfactory completion of a major.

EDUCATION

201. INTRODUCTION TO EDUCATION. (3) An introductory course to acquaint students with the teaching profession. Considered are the role of the teacher, the clientele of the school, and the community. Emphasis placed on the historical and sociological orientation of the school in the society.

301. READING AND THE LANGUAGE ARTS. (3) Emphasis on oral and written communication, with special attention to the teaching of reading; appraisal of current programs and methods.

This course required for all students planning to teach on the elementary level.

303. ELEMENTARY EDUCATION I: ORGANIZATION AND CURRICULUM. (3) Prerequisites: Education 201, Psychology 202. Major consideration is given to the organization, administration, and curriculum of the elementary school. Emphasis placed on the role of the elementary school teacher in the total education program.

304. PHILOSOPHY OF EDUCATION. (3) Prerequisites: Education 201, Psychology 202. A study of the educational philosophies of the contemporary period and the basic assumptions upon which statements about modern education rest. Extensive readings in text and source materials.

400. TOPICS IN EDUCATION. (2 or 3 semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: employment as a teacher or special permission of the Department of Education. Topics chosen from such fields as remedial reading, special education, guidance, kindergarten, and supervision. This course is designed to serve particular needs, not served by other departmental offerings.

401. ELEMENTARY EDUCATION II: METHODS AND MATERIALS. (3) Prerequisite: Education 303. Major consideration is given to the methods and materials used in teaching at the various grade levels in the elementary school. Emphasis placed on the preparation of lesson plans and units.

402. METHODS OF TEACHING IN SECONDARY SCHOOL. (3) Prerequisites: Education 201, Psychology 202. Aims, methods, and materials of teaching a subject at the secondary level. Also considered are the following: organization of the curriculum, pupil promotional patterns, and classroom management.

402-a English
402-b Foreign Languages
402-b-1 French
402-b-2 Spanish
402-b-3 German
402-c Mathematics
402-d Sciences
402-e Social Sciences

403. PRINCIPLES OF GUIDANCE. (3) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to increase the teacher's knowledge and understanding of the meaning, scope, and principles of guidance in the school setting. A survey course planned to give perspective for future work in guidance.

404. SEMINAR IN EDUCATION RESEARCH. (3) Prerequisite: employment as a teacher or special permission of the Department of Education. The course is designed to assist teachers to conduct and evaluate research studies. Basic research techniques will be examined. Each student will develop a limited research project.

405. SEMINAR FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite: employment as an elementary school teacher or special permission of the Department of Education. Contemporary problems and issues confronting teachers in their actual school experience. The activities of the course will vary with the needs of the students.

407. AUDIOVISUAL MEDIA. (3) Prerequisite: Open to all students with junior standing. The selection, use and evaluation of technological innovations in audiovisual media will be studied. Laboratory experiences in communication media will be emphasized.

450. STUDENT TEACHING: ELEMENTARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in an elementary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

451. STUDENT TEACHING: SECONDARY. (6) Prerequisite: education sequence and approval of the Department of Education. Observation and teaching in a secondary school. Student teaching is conducted on a full-time basis during the second half of the semester and is carried out under college supervision in cooperating public schools.

ENGINEERING

Professor Barnette, *Chairman;* Associate Professor Wayne; Assistant Professors Evett, Kim and Norem; Instructors Smith, Barker (Part-time), Browning (Part-time), Roxlo (Part-time); Lecturer Gibbon.

The Engineering Department offers an undergraduate program in professional engineering education which can be used as the foundation for several different career objectives.

1) Some students will wish to prepare for a career as a professional engineer in industry, in business, or in counsulting.
2) Some will look toward graduate study in order to prepare for careers in research, development, or teaching.
3) Still others will desire a more general and a more liberal

engineering education with the objective of keeping a variety of career avenues open.

Whatever the objectives, there are several essential components in a sound program of engineering study. The curriculum must include a substantial content: 1) in the humanities and social sciences, 2) in the physical sciences, 3) in mathematics, 4) in the several engineering sciences. Also, 5) there must be an in depth experience in creative engineering design. The student preparing for graduate study, while including all these components in his undergraduate program, will place special emphasis upon science, engineering science, and mathematics. The student expecting to accept employment in industry after four years of study will wish to emphasize the engineering sciences and creative engineering design. A high percentage of engineering graduates ultimately take on executive and management responsibilities in industries and firms which are based upon engineered products and engineering services. Therefore, some students will want to construct an elective option which includes Business Administration and Economics courses, and courses which will strengthen their communication skills.

There are many students who have not settled upon career objectives by the time they enter college, and some who may not develop specific objectives until late in their four-year program of study. These persons, if they have aptitude and interest in both technical and non-technical areas of knowledge, have the opportunity to synthesize for themselves, with counsel and guidance, a program of study combining engineering and the humanities and social sciences. This combination of liberal and engineering education should offer the student an excellent opportunity to find meaning and self-fulfillment in a technological age, whatever career he may ultimately pursue.

The engineering curriculum prescribed by the faculty of the University of North Carolina at Charlotte gives thorough attention to the five essential components of a sound program of study. Those elements which are considered basic to every program of study are specified in the curriculum outline, and result in freshman and sophomore requirements which are the same for all engineering students, except for the electives in the humanities and social sciences.

The flexibility required of the curriculum to accommodate the several career objectives which have been mentioned is provided for by means of two blocks of courses: namely, the Major Option and the Minor Option. In addition to providing for a variety of career objectives, these options give the student the opportunity to achieve a limited beginning toward specialization in one of the long established fields of engineering (electrical, mechanical,

civil, etc.), in some of the newly emerging fields (biomedical electronics, ocean engineering, et al), or to synthesize an interdisciplinary program of study (engineering science, electromechanical systems, energy conversion, et al). Guide lines for using the core of offerings within the Engineering Department and throughout the University to plan the appropriate content of the major and minor options are given just following the curriculum outline.

Curriculum Requirements for the Bachelor of Science in Engineering

FRESHMAN YEAR

English 101	3	English 102	3
Humanity or Social Sc.*	3	Humanity or Social Sc.*	3
Mathematics 104	3	Mathematics 141	4
Chemistry 101	4	Chemistry 102	4
Engineering 101	2	Engineering 102	2
	15		16

SOPHOMORE YEAR

Humanity or Social Sc.*	3	Economics 201 or 202	3
Mathematics 142	4	Mathematics 241	4
Physics 221	3	Physics 231	3
Physics 251	1	Engineering 252	1
EE 211	3	EE 212	3
EM 211	3	EM 212	3
	17		17

JUNIOR YEAR

Humanity or Social Sc.**	3	Humanity or Social Sc.**	3
Mathematics 242	4	Physics 241	3
ME 311	3	Minor Option****	3
Major Option***	7	Major Option***	7
	17		16

SENIOR YEAR

Humanity or Social Sc.**	3	Humanity or Social Sc.**	3
Minor Option****	6	Minor Option****	6
Major Option***	7	Major Option***	7
	16		16

* Humanities and Social Science Electives-Lower Divison. The three courses in the humanites and social sciences which are listed as electives in the freshman and sophomore years provide an opportunity to the engineering student to explore and to identify areas of interest outside his major field.

** Humanities and Social Science Electives-Upper Division. The four courses in the humanities and social sciences which are listed as electives in the junior and senior years are to be used to gain depth in a preferred area. Therefore, prior to beginning the junior year, each student is to submit a statement of objectives and a plan for utilizing these twelve hours of electives to meet his objectives.

*** The Major Option. The 28 semester hours of Major Option course work may be used to specialize in a classical field of engineering, or to synthesize an interdisciplinary engineering or engineering-science program. The department will maintain a current list of possible options from which the student may select. However, each

Examples of Programs Which Can Be Developed Through Use of The Major Option Block Courses.

Even beyond the course content which is shown in the curriculum as common for all students, there are substantial amounts of engineering science material, and of engineering methodology in analysis and design, which are appropriate to many different specializations.

In recognition of this unity and coherence of basic engineering science and methodology, the Department has developed a core of fundamental courses which will serve some classical areas of engineering. At the same time, these courses lend themselves to broad application in the synthesis of modern interdisciplinary programs and to study programs in the newly emerging fields of engineering.

The lists of courses which follow represent suggested options in two classical fields.

The courses in these options are listed in a four-semester format which takes into account prerequisite relationships. Variation from the listed sequences, in regard to the semester in which specific courses are taken, may be desirable or necessary in some instances. Minor option courses or humanities and social science electives can be shifted as necessary to accommodate such changes.

Option in Electrical Engineering

EE 311 Transients	3	EE 312 A. C. Circuits	3
EE 321 E&M Fields	3	EE 333 Electronics	3
EE 351 Laboratory I	1	EE 352 Laboratory II	1
EE 421 E&M Fields	3	EE 442 Machinery	3
EE 431 Electronics	3	EE Elective	3
EE 451 Laboratory III	1	EE 452 Laboratory IV	1

student is encouraged to develop a personal program of study through counseling with departmental and extra-departmental faculty. Individualized study programs are to be submitted for review and are subject to advance approval.

**** The Minor Option. The 15 semester hours of Minor Option course work may be used in several ways: (1) To develop a second area of interest, e.g., business administration, foreign languages, humanities, social sciences, etc.; (2) To strengthen the major field of specialization; (3) To strengthen the mathematics, science and engineering base preparatory to graduate study; (4) To support an interdisciplinary study program, e.g., bio-medical electronics, computer science and engineering, biology and physiology related to ocean engineering, etc. Each student will submit, in advance, a study plan setting forth the objectives and details of the Minor Option study program.

NOTE: Engineering faculty, engineering students, and non-engineering faculty will work together in study program review committees in order to maximize student participation in the purposeful planning of their undergraduate programs. The requirement of pre-planning the Major Option, the Minor Option, and the Humanities and Social Sciences study programs is intended to assure maximum utilization of curriculum flexibility by actively involving the student in a personalized program of study which will be sound in the professional sense, will recognize and take advantage of his best motivations and highest capabilities, and will result in a broad and deep educational preparation for service to and fulfillment in the current technological society.

Option in Mechanical Engineering

ME 321 Theory of Mach.	3	ME 312 Thermo II	3
EM 311 Mech. Behavior	3	EM 312 Fluid Mech.	3
ME 351 Laboratory I	1	ME 351 Laboratory II	1
ME 411 Heat Transfer I	3	ME 418 Heat Transfer II	3
ME 421 Design I	3	ME 422 Design II	3
ME 451 Laboratory III	1	ME 452 Laboratory IV	1

Other Major Options

Students may obtain counseling in planning other major options which can be supported by available courses. These special programs of study should be planned during the sophomore year and presented in written proposal form for review and approval by the Department Chairman or a designated faculty committee. Variations from a filed proposal must be requested in writing and approved in advance.

ENGINEERING COURSE DESCRIPTIONS

BASIC ENGINEERING

E 101. INTRODUCTION TO ENGINEERING PROBLEMS. (2) An introduction to the concepts, techniques, and tools used to solve engineering problems. Use of the slide rule; elements of engineering drawing, graphical analysis, descriptive geometry; analysis and presentation of engineering results, graphs and charts, engineering reports. Introduction to computer programming. One lecture and two laboratory or problem hours per week.

E 102. INTRODUCTION TO ENGINEERING PRINCIPLES. (2) Prerequisite or corequisite: Math 104. An introduction to some fundamental concepts in engineering. An introduction to engineering mechanics; the physical concepts of vectors; forces and moments as vector quantities; application of the concepts of mechanical equilibrium.

E 252. BASIC ENGINEERING LABORATORY. (1) Prerequisite: EE 211. The first of a series of engineering laboratories designed to instruct the student in the use of laboratory equipment, and to develop and apply the principles of experimentation and measurement. One laboratory period of three hours a week.

CIVIL ENGINEERING

CE 211. SURVEYING. (3) Prerequisite: Mathematics 141. Elements of plane surveying including taping, transit, level,

stadia, plane table, topographic surveying and mapping, care and adjustment of instruments; error adjustments; area and earthwork computations; introduction to photogrammetry; computer techniques. Periods for laboratory, lecture, and field work will be scheduled.

CE 311. INTRODUCTION TO STRUCTURAL ANALYSIS (3) Prerequisite: Engineering Mechanics 211. Analysis of statically determinate beams and frame structures under fixed and moving loads; influence lines and criteria for moving loads; analysis of trusses; deflections.

ELECTRICAL ENGINEERING

EE 211. LINEAR NETWORKS I. (3) Prerequisite: Mathematics 141. Introduction to Kirchoff's current and voltage equations using oriented linear graphs techniques. Formulation of cut set and circuit matrices. Terminal equations of network elements. Formulation of the primary and secondary systems of equations by matrix methods. Network theorems and equivalence. Power and energy functions.

EE 212. LINEAR NETWORKS II. (3) Prerequisite: EE 211. Formulation of network equations and the investigation of the transient and steady state solution of these equations with step, pulse and sinusoidal driving functions using classical methods. The vector transform as an introduction to sinusoidal steady state. Sinusoidal steady state and frequency response of networks.

EE 311. TRANSIENTS. (3) Prerequisite: EE 212. The study of the Laplace transform theorems, concepts, properties and techniques, and its application to networks. The formulation of network equations and the investigation of the transient and steady state solutions of these equations for networks with step, pulse, periodic, and sinusoidal driving functions. Introduction to complex variables, residues, and partial fractions. Initial conditions, switching and transition transients. The vector transform as an introduction to the sinusoidal steady state. Three hours.

EE 312. ALTERNATING CIRCUIT THEORY. (3) Prerequisite: EE 311. Analysis and investigation of sinusoidal circuits: series, parallel, network theorems, matching, coupled circuits, etc., mesh, branch and node equations of RLCM multimesh networks in vector notation, both through matrix formulation and direct formulation from the graph. The Fourier series and its application to networks. Two and four terminal network equivalences, the methods for and the restrictions on

their interconnections. Filter theory: conventional and image parameter methods. Three hours.

EE 321. INTRODUCTION TO ELECTROMAGNETIC FIELDS (3) Prerequisite: EE 212. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell equations. Three hours.

EE 332. FUNDAMENTALS OF ELECTRONICS AND SEMICONDUCTORS. (3) Prerequisite: EE 311. A study of fundamental concepts and principles embracing both vacuum tube and semiconductor theory. Semiconductor and vacuum tube parameters and characteristics. Small signal analysis and equivalent circuits. Rectifier circuitry, vacuum tube and gas tube power devices: thyratrons, ignitrons, etc. Photoelectric devices. Amplifier and oscillator characteristics and their configurations. Three hours.

EE 351. LABORATORY I. (1) Prerequisites: E 252, EE 311, and 321 parallel. A continuation of E 252, involving experiments in the areas of circuit theory and fields. Three hours.

EE 352. LABORATORY II. (1) Prerequisites: EE 312 and EE 332 parallel. A continuation of EE 351 involving experiments in the areas of circuit theory, electronics, and semiconductors. Three hours.

EE 400. SPECIAL TOPICS IN ELECTRICAL ENGINEERING. (Variable credit 1-4 hours) Prerequisite: Senior standing in Electrical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional electrical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

EE 401. UNDERGRADUATE RESEARCH. (Variable credit 1-4 hours) (This course may be repeated for credit.) Prerequisite: permission of the department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of electrical engineering. The

course permits a student to pursue some particular area to a depth much greater than can be undertaken within the scope of existing courses. The topic of the investigation may originate from the student or from the faculty member who will supervise the study.

EE 411. NETWORK SYNTHESIS. (3) Prerequisite: EE 312. Positive real functions, their properties and methods of testing. Driving point synthesis of LC, RC and RL networks into Foster and Cauer networks. One terminal pair RLC network synthesis using the Brune and Bott-Duffin methods. Realization of two terminal pair networks by ladders, Cauer networks, lattices and Darlington networks. Approximation methods. Three hours.

EE 412. NONLINEAR ANALYSIS. (3) Prerequisite: EE 312. Solutions of nonlinear problems using numerical methods, graphical methods, phase plane plots, analysis of singular points, and analytical techniques. The use of analogs and duals for writing equations. The use of the analog computer and digital computer. Three hours.

EE 421. ELECTROMAGNETIC WAVES. (3) Prerequisite: EE 321. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial lines and waveguides. Three hours.

EE 422. RADIATION AND MICROWAVE THEORY. (3) Prerequisite: EE 421. A study of radiation into free space; antenna theory. Microwave theory: components and junctions, methods of feeding, matching, terminations and generation. Microwave amplifiers and oscillators. Introduction to Laser theory. Three hours.

EE 431. ELECTRONICS. (3) Prerequisite: EE 332. A study of electronic and seminconductor devices: transistor and vacuum tube power devices, audio and radio frequency amplifiers, tunnel diode amplifiers, high frequency amplifiers, feedback analysis of vacuum tube and transistor circuits, modulation and demodulation theory and related circuitry. Generalized transistor oscillator analysis. Three hours.

EE 432. COMPUTER ELECTRONICS. (3) Prerequisite: EE 431. A study of logic and gate circuits, wave-shaping circuits, switching circuits, multivibrators, pulse circuits. The introduction to microwave electronics, principles of electron devices including magnetrons, klystrons, traveling wave tubes and particle accelerators. Three hours.

EE 434. SOLID STATE ELECTRONICS. (3) Prerequisite: Physics 311. Band structure of solids. Electric analog for an array of atoms. Electron transport mechanisms in conduction, diffusion, tunneling. Electronic models of varactors, tunnel diodes, and solid state microwave devices.

EE 441. ELECTROMAGNETIC DEVICES. (3) Prerequisites: EE 312, EE 321. Magnetic circuits. Transformer principles, equations, circuits. Magnetic amplifiers. Incremental motion transducers. Field of distributed windings. Servo control transformers, selsyns. Three hours.

EE 442. ELECTRIC MACHINERY. (3) Prerequisite: EE 441. Direct-current machines, induction machines. Machines in control systems. Synchronous machines. Fractional horsepower motors. Three hours.

EE 446. ELECTRIC POWER SYSTEM ANALYSIS. (3) Prerequisites: EE 312, EE 321. Transmission lines: constants, circuit representations, equations, circle diagrams. System representations, network equations and solutions. Load flow studies, economic operation, fault studies, stability studies. Three hours.

EE 451. LABORATORY III. (1) Prerequisites: EE 312, EE 332, EE 352. A continuation of EE 352 involving experiments in the areas of circuit theory, electronics, and electromagnetics. Three hours.

EE 452. LABORATORY IV. (1) Prerequisite: EE 451. A continuation of EE 451 involving experiments in electromagnetics, devices, and machines. Three hours.

EE 471. AUTOMATIC CONTROL SYSTEMS I. (3) Prerequisite: EE 312. A study of transfer functions, block diagrams and signal flow graphs. Feedback control system characteristics. The performance and stability of feedback systems using root locus and frequency response methods. Time domain analysis of control system. The design and compensation of control systems.

EE 472. AUTOMATIC CONTROL SYSTEMS II. (3) Prerequisite: EE 471. A study of state space techniques and useful state space methods. System stability and Liapunov's method. Controllability and observability of linear systems. The formulation of the state variable equations for discrete-time systems and the analysis of these systems by time domain matrices. Analysis of nonlinear systems. Optimal control system studies.

ENGINEERING MECHANICS AND ENGINEERING MATERIALS

EM 211. STATICS AND STRENGTH OF MATERIALS. (3) Prerequisite or corequisite: Mathematics 142. Mechanical

equilibrium in structures subject to discrete forces and variable distributed loads. Moments of areas and moments of inertia. Shear force, bending moments and deflection of beams. Shear and normal stresses in beams and trusses. Torsion, combined stress, and analysis of plane stress.

EM 212. DYNAMICS. (3) Prerequisite: EM 211. Prerequisite or corequisite: Physics 221. Kinematics and dynamics of particles and rigid bodies. Position, displacement, velocity, and acceleration in rectangular, cylindrical, and path coordinates. Relative motion, Coriolis acceleration. Application of Newton's second law to physical systems. Analysis of vibrating systems. Conservation of energy and momentum.

EM 311. MECHANICAL BEHAVIOR OF SOLIDS. (3) Prerequisite: EM 211. The structure of metallic, polymeric and other non-metallic engineering materials. The mechanical properties of these materials with emphasis on the relationships between structure and properties. Static properties in tension, compression, shear, and bending. Dynamic and temperature effect upon properties; fatigue, creep, and impact behavior. Theories of failure under combined stresses. Viscous flow of solids and viscoelastic materials.

EM 312. FLUID MECHANICS. (3) Prerequisites: ME 311, Mathematics 242. Properties of fluids, fluid statics, derivation and application of equations for conservation of mass, energy, linear momentum and angular momentum. Dimensional analysis and dynamic similitude. Viscous effects. Ideal fluid flow.

EM 461. PHYSICAL METALLURGY I. (3) Prerequisites: EM, 311, ME 311. Types and classifications of materials. Atomic and crystal structure. Physical properties. Phase diagrams, alloy theory, kinetics of metallurgical processes, and phase transformations.

EM 462. PHYSICAL METALLURGY II. (3) Prerequisite: EM 461. Deformation and fracture theory. Mechanical properties, strengthening concepts, heat treating and property control. Design, fabrication, and application considerations.

MECHANICAL ENGINEERING

ME 311. THERMODYNAMICS I. (3) Prerequisites: Physics 221, Math 241. First and second law of thermodynamics. Work and heat. Entropy and Clausius inequality. Ideal and real gases. Nonreactive mixtures of gases. Availability and irreversibility. Vapor and gas power cycles.

ME 312. THERMODYNAMICS II. (3) Prerequisite: ME 311. General thermodynamic relations; equations of state and general-

ized charts. Combustion, dissociation, and chemical equilibrium. Introduction to statistical thermodynamics.

ME 321. THEORY OF MACHINES. (3) Prerequisite: EM 212. Application of dynamics to mechanical systems. Static-force analysis. Dynamic-force analysis of plane motion and space mechanisms.

ME 351. ME LAB I. (1) Corequisites: ME 311, EM 311. Theory and principles of instrumentation. Measurement of thermodynamic properties, flow properties, and strain. Preparation of Engineering report. No lecture hours. One laboratory period of three hours a week.

ME 352. ME LAB II. (1) Prerequisite: ME 351. Corequisites: ME 312 and EM 312. Continuation of ME 351. Analysis of simple systems. No lecture hours. One laboratory period of three hours a week.

ME 400. SPECIAL TOPICS IN MECHANICAL ENGINEERING. (Variable credit 1-4) Prerequisite: Senior standing in Mechanical Engineering. This course will be devoted to specific new areas which are emerging in the field of professional mechanical engineering. Given at the senior level, the course will build upon and synthesize the knowledge the students have gained from the engineering science, mathematics, and physical science stems of the core curriculum given in the sophomore and junior years. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization.

ME 401. UNDERGRADUATE RESEARCH. (Variable credit 1-4 hours) (This course may be repeated for credit.) Prerequisite: permission of the department. This course involves the independent study of a theoretical and/or experimental problem in a specialized area of mechanical engineering. The course permits a student to pursue some particular area to a depth much greater than can be undertaken within the scope of existing courses. The topic of the investigation may originate from the student or from the faculty member who will supervise the study.

ME 411. HEAT TRANSFER I. (3) Prerequisites: Math 371, EM 312, ME 311. Analysis of steady state and transient heat conduction. Heat transfer by radiation. Radiation networks. Gaseous radiation exchange.

ME 412. DYNAMICS AND THERMODYNAMICS OF COMPRESSIBLE FLOW. (3) Prerequisites: ME 311, EM 312.

Compressible flow equations, isentropic flow, normal shock waves. Fanno and Rayleigh line flows. Nonsteady one dimensional flow.

ME 413. EXPERIMENTAL STRESS ANALYSIS. (3) Prerequisite: EM 311. Theoretical and experimental techniques of stress and strain analysis, with experimental emphasis on electrical strain gages and instrumentation; brittle coatings and photoelasticity.

ME 414. REFRIGERATION. (3) Prerequisite: ME 311. Vapor compression, absorption and low temperature refrigeration cycles and systems.

ME 415. ENERGY CONVERSION I. (3) Prerequisites: ME 312, Corequisite: ME 411. Application of the basic concepts of thermodynamics, heat transfer and fluid flow to power plant problems.

ME 416. ENERGY CONVERSION II. (3) Prerequisite: ME 311. Study of conversion of heat into power. Thermoelectric, magnetohydrodynamic engines, therminoic converters, solar and fuel cells.

ME 418. HEAT TRANSFER II. (3) Prerequisite: ME 411. Natural and forced convection based upon boundary layer theory. Heat transfer in fluids with change in phase. Introduction to mass transfer.

ME 421. DESIGN I. (3) Prerequisite: ME 321. Senior standing. Technical application of the basic principles of the mechanical science to the analysis of machines and mechanical systems. Methods of design of typical machine elements. Strength and deflection requirements.

ME 422. DESIGN II. (3) Prerequisite: ME 421. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

ME 424. MECHANICAL VIBRATIONS. (3) Prerequisites: ME 321, Math 371. Study of vibratory motion, including one or more degrees of freedom, with and without damping.

ME 451. ME LAB III. (1) Prerequisite: ME 352 and Senior standing. The selection of appropriate instrumentation and the experimental analysis of a predetermined small scale engineering system. No lecture hours. One laboratory period of three hours a week.

ME 452. ME LAB IV. (1) Prerequisite: ME 451. Continuation of ME 451.

ME 472. AUTOMATIC CONTROLS. (3) Prerequisite: Senior

standing. Closed-loop control systems. Application of transfer function analysis.

REVIEW CLASS FOR NORTH CAROLINA ENGINEERING REGISTRATION EXAMINATION

The forty-two hours of work in this course include a review of the fundamentals of engineering.

ENGLISH

Professors Wallace, *Chairman,* McEniry; Associate Professors Ellis, Mason,[1] McCall, Moose, Varnas; Assistant Professors Gatlin, Shapiro; Instructors Bush, Cook, Kerwin, Newman, Patterson, Stauffer, Watson

A major in English leading to the B.A. degree (except for students in the elementary teachers certification program) consists of 30 hours of courses above English 102. Required courses are 201, 202 (6); Shakespeare (3); one English and one American period course (6); one advanced course in language or composition (3); and 12 additional hours within the department. Majors in English must take 3 hours in the history of England. Related work consists of 15 semester hours.

A major in English for students in the elementary teachers certification program consists of 24 hours of English beyond English 102, including English 201, 202 (6); Shakespeare (3); English Grammar (3); one English and one American period course (6); and 6 additional hours within the department. Majors in the elementary certification program must take 3 hours in the history of England or of the United States. Related work consists of 15 hours.

101. ENGLISH COMPOSITION. (3) Readings and intensive practice in writing, especially exposition, with emphasis on rhetorical effectiveness.

102. ENGLISH COMPOSITION. (3) Prerequisite: English 101 or advanced placement. Critical writing, collateral reading, and introduction to literary study.

201. ENGLISH LITERATURE. (3) Prerequisite: English 102. Intensive study of the masterpieces of British literature in chronological sequence before 1700. Not open to students with credit for English 205.

202. ENGLISH LITERATURE. (3) Prerequisite: English 201 or 205. British literary masterpieces since 1700.

[1] On leave 1968-69.

203. MASTERPIECES OF MODERN FICTION. (3) Readings in selected novels and short stories written since 1850. Does not count toward an English major.

204. MAJOR AMERICAN WRITERS. (3) Extensive readings in six to eight authors. Recommended for non-English majors who are working for teachers certificates. Does not count toward an English major.

205. READINGS IN WESTERN LITERATURE. (3) Prerequisite: English 102. Ancient, British, and American writings, emphasizing basic themes and literary forms. Not open to students with credit for English 201.

NOTE: Prerequisite for 300 and 400 level courses: six semester hours of English on the 200 level, unless otherwise specified.

301. MASTERPIECES OF EUROPEAN LITERATURE. (3) Reading of complete Greek and Latin works in translation: epic, drama, history, oratory, and lyric poetry.

302. MASTERPIECES OF EUROPEAN LITERATURE. (3) Readings in Dante, Erasmus, Montaigne, Moliere, Dostoevsky, Tolstoy, and others.

303. CHILDREN'S LITERATURE. (2) Critical study of representative reading materials and approaches to literature appropriate for elementary school children. Does not count toward an English major.

305. ADVANCED COMPOSITION. (3) The writing of essays, criticisms, various forms of exposition, and short narratives.

311. CHAUCER. (3) *The Canterbury Tales, Troilus and Criseyde,* and selected minor works.

312. SHAKESPEARE. (3) Twelve of his major plays from the comedies, tragedies, and histories.

313. MILTON. (3) The major poems and selections from the minor works.

321. THE EARLIER SEVENTEENTH CENTURY. (3) From Bacon, Donne, and Jonson to the Restoration.

323. ENGLISH LITERATURE, 1660-1785. (3) Poetry and prose from Dryden through Johnson; collateral readings in drama and the novel.

325. THE ROMANTIC ERA, 1785-1832. (3) The development of the Romantic movement with emphasis on the works of Wordsworth, Coleridge, and other major poets.

326. THE VICTORIAN ERA, 1832-1900. (3) Emphasis on Tennyson, Robert Browning, Arnold, Carlyle, Ruskin, and Newman.

331. THE ENGLISH LANGUAGE. (3) Origins and development of the English language and its present usage.

332. ENGLISH GRAMMAR. (3) English grammar with particular emphasis on modern usage; some relations of grammar and composition.

341. AMERICAN LITERATURE, 1820-1890. (3) The chief writers and literary movements from Irving through Whitman.

342. AMERICAN LITERATURE SINCE 1890. (3) The chief writers and movements from Howells to the present.

343. THE AMERICAN NOVEL OF THE NINETEENTH CENTURY. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, with primary attention to approximately eight or ten representative novels.

344. THE AMERICAN NOVEL OF THE TWENTIETH CENTURY. (3) Major novelists and traditions from the emergence of naturalism to the present, with primary attention to approximately eight or ten representative novels.

401. LITERARY CRITICISM. (3) Prerequisite: fifteen hours of English. The major schools and individual critics; readings in the history of criticism and composition of critical papers.

413. ENGLISH POETRY AND PROSE OF THE SIXTEENTH CENTURY. (3) The major works, excluding drama, More through Spenser, with attention to the development of the lyric.

421. THE ENGLISH NOVEL BEFORE SCOTT. (3) Major writers and traditions, Defoe through Jane Austen.

422. THE ENGLISH NOVEL FROM SCOTT THROUGH THE VICTORIANS. (3) Major writers and traditions through Hardy.

423. THE MODERN BRITISH NOVEL. (3) Representative British novels showing the philosophies and techniques affecting British fiction, from Hardy to the present.

431. ENGLISH DRAMA BEFORE 1642. (3) Representative plays with emphasis on the chief Elizabethan, Jacobean, and Caroline dramatists from Lyly to Ford, excluding Shakespeare.

441. COLONIAL AND EARLY AMERICAN LITERATURE. (3) American literature from Colonial times through Washington Irving.

450. MODERN POETRY. (3) Chief British and American poets of this century.

451. MODERN DRAMA. (3) Representative British and American plays from Shaw to the present.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the departmental Chairman. Lectures, discussion, and student reports.

FINE ARTS

Professor Mathis, *Chairman*

ART

Assistant Professor Gatewood, Instructors Anderson, Peacock (Part-time)

201. ART APPRECIATION (3) An introduction to art history and appreciation covering basic concepts, aesthetic aims, and social influences which characterize and differentiate one civilization or period from another. Three lecture hours each week.

203. BASIC STUDIO I. (3) A beginning studio course to introduce the student to the fundamentals of organization, composition, and use of color in two dimensional design. Six studio hours each week.

204. BASIC STUDIO II. Prerequisite ART 203. (3) A beginning studio course in which the various media and approaches to drawing and composition are investigated. Six studio hours each week.

302. ART FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite or corequisite: Education 303. A study of materials and techniques which the teacher may use in art activities in the school. Six studio hours each week.

305. PAINTING. Prerequisite ART 203 or permission of instructor. (3) A studio course investigating techniques and approaches in painting. Six studio hours each week.

310. ANCIENT ART. (3) A study of painting, sculpture and architecture from the pre-classical civilizations through the Roman Empire. Three lecture hours each week.

312. RENAISSANCE ART. (3) A study of the painting, sculpture, and architecture of Italy and of Northern Europe during the Renaissance. Three lecture hours each week.

314. POST RENAISSANCE ART. (3) A study of the paint-

ing, sculpture and architecture of Europe from the Baroque period through the early nineteenth century. Three lecture hours each week.

316. MODERN ART. (3) A study of western painting, sculpture and architecture from the mid-nineteenth century to the present. Three lecture hours each week.

320. GENERAL CRAFTS. (3) Prerequisite: Art 203. An introductory studio course in the various craft media and techniques including ceramics, metal, wood and fiber. Six studio hours each week.

330. SCULPTURE. (3) Prerequisites: Art 203 and Art 204. A beginning studio course designed to investigate various media and approaches in sculpture. Six studio hours each week.

403. DESIGN. (3) Prerequisites: 203, 204, 304 or permission of instructor. An advanced studio course designed to offer students further projection into 2 D and 3 D areas, with emphasis on material research, technique, structuring and design theory. Six studio hours each week.

405. PAINTING. (3) Prerequisites. Art 203, 204, and 305. A studio course planned to increase the student's knowledge of, and investigations in painting. Six studio hours each week.

MUSIC

Professor Mathis; Associate Professor Booth; Instructors Boyette, Woodruff (Part-time)

101. ELEMENTARY THEORY OF MUSIC. (4) An aural approach to fundamentals of music. Emphasis on ear-training, sight-singing, and key board harmony. Three lecture hours, two one-hour laboratories per week.

102. ELEMENTARY THEORY OF MUSIC. (4) Continuation of Music 101. Prerequisite: Music 101.

201. INTERMEDIATE THEORY OF MUSIC. (4) Continuation of Music 102. Prerequisite: Music 102.

202. INTERMEDIATE THEORY OF MUSIC. (4) Continuation of Music 201. Prerequisite: Music 201.

207. INTRODUCTION TO MUSIC LITERATURE. (3) The development of resources for the aural exploration of music through emphasis on stylistic characteristics and the evolution of musical forms, and the interrelationship of music with other cultural influences.

208. INTRODUCTION TO MUSIC LITERATURE. (3) Continuation of Music 207. Prerequisite: Music 207.

301. HISTORY OF MUSIC. (3) A period course focusing on stylistic evolution of music from its origins through the Baroque period. Prerequisite: Music 202, Music 208, or consent of the instructor.

302. HISTORY OF MUSIC. (3) Continuation of Music 301, from the Baroque period to the present. Prerequisite: Music 301.

307. MUSIC FOR ELEMENTARY SCHOOL TEACHERS. (3) Prerequisite or corequisite: Education 303. Methods and materials of instruction which the teacher can apply in a music program in the elementary school.

308. SEMINAR IN MUSIC EDUCATION. (3) A problem course dealing with psychological, philosophical, and aesthetic criteria for the selection and presentation of music materials to persons at varying levels of maturity and musical background. Prerequisite: Consent of the Instructor.

APPLIED MUSIC

151-152, 251-252, 351-353, 451-452. (2) Piano. (Must be taken in sequence.) May be taken for one hour of credit.

161-162, 261-262, 361-362, 461-462. (2) Voice. (Must be taken in sequence.) May be taken for one hour of credit.

171-172, 271-272, 371-372, 471-472. (2) Organ. (Must be taken in sequence.) May be taken for one hour of credit. Prerequisite: consent of instructor.

NOTE: For each hour of credit, one one-half hour private lesson and a minimum of five hours of practice per week. All students enrolled for credit study in Applied Music must perform at the conclusion of each semester before a faculty jury.

ENSEMBLE

181-182, 281-282, 381-382, 481-482. CHORUS
One credit hour each semester.

SPEECH AND THEATRE

Associate Professor Nicholson; Instructors Nugent, Ferguson (Part-time)

101. FUNDAMENTALS OF SPEECH. (3) Training in voice and diction to develop effective delivery. The composition and presentation of speeches.

111. INTRODUCTION TO THEATRE. (3) A survey of the art of the actor, director, designer, and playwright; reading of selected plays and analysis of dramatic form.

201. ORAL INTERPRETATION OF LITERATURE. (3) Prerequisite: Sophomore standing. Intensive training in voice and diction. Analysis and presentation of selected English and American literature.

203. ARGUMENTATION AND DEBATE. (3) Principles of argumentation and debate, including analysis, brief-making, evidence, reasoning, and refutation; class debating on vital issues. Prerequisite: Speech 101 or consent of instructor.

211. THEATRE WORKSHOP. (2) An acting laboratory. Development of a creative approach to acting through exercises in concentration, pantomime, improvisation, characterization. Three hours weekly.

212. THEATRE WORKSHOP. (2) Prerequisite: Speech 211. Emphasis on the disciplines of acting technique. Analysis and presentation of selected scenes from plays.

301. GREEK AND ROMAN DRAMA IN TRANSLATION. (3) Prerequisite: 6 semester hours of literature on the 200 level or above. A study of selected plays of Aeschylus, Sophocles, Euripides, Plautus, Terence, and Seneca with emphasis on dramaturgy and the development of the Greek and Roman theatre.

FOREIGN LANGUAGES

Professors Turner, *Chairman,* Macy, Slechta; Associate Professors Bush, Gabriel, Hoyle, Saman; Instructors Brooks, Brown, Hopper, Richard, Sabates; Lecturers Tucker, Wruck

Programs in each of the several foreign languages offered are designed to give a student competence in four skills—understanding, speaking, reading, and writing the given language, to acquaint him with the culture and civilization of the country or countries where that language is spoken, especially their literature, and to give him some understanding of the people who speak it. Major programs include advanced linguistic analysis of sound systems and structure and are designed to prepare students for certification by the North Carolina State Department of Public Instruction or graduate work in the major field.

Placement

The Department of Foreign Languages will recommend the

placement of a student in a class of a level commensurate with his demonstrated competence at the time of enrollment considered together with his prior language training or experience. (See pages 60-61.)

Laboratory

All foreign language courses at the 100 and 200 level, as well as those numbered 301 and 302, meet for three class hours and one to two hours of laboratory work per week. Whenever warranted, laboratory work may be assigned by the instructor in other courses.

See pages 60-61 for general foreign language requirements for degree candidates.

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
Speech 101	3	Mathematics Elective	3
History 101	3	History 102	3
Foreign Language 201	3	Foreign Language 202	3
Elective	3	Elective	3
	15		15

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
Foreign Language 301	3	Foreign Language 302	3
Literature Elective	3	Foreign Language 304	3
Science with lab.	4	Science with lab.	4
		Math. or Logic Elective	3
Social Science Elective	3	Elective	3
Elective	3		
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 303	3	Foreign Language 4xx	3
Foreign Language 309 (331)	3	Literature Elective	3
Fine Arts Elective	3	Phil. (Comp. Rel.)	3
Soc. Sci. Elective	3	Elective	3
Elective	3	Elective	3
	15		15

SENIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 4xx	3	Foreign Language 49x	3
Foreign Language 4xx	3	Fine Arts Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	15		15

Total Hours: 122

Suggested Curriculum Leading to a Bachelor of Arts Degree in a Foreign Language, with Certification in Secondary School Teaching

FRESHMAN YEAR

1st Semester		*2nd Semester*	
English 101	3	English 102	3
Speech 101	3	Mathematics 101 (103)	3
History 101	3	History 102	3
Foreign Language 201	3	Foreign Language 202	3
Elective	3	Elective	3
	15		15

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
English 201	3	English 202 (203, 204)	3
Foreign Language 301	3	Foreign Language 302	3
Education 201	3	Foreign Language 304	3
Social Science[1]	3	Math. or Logic	3
A Physical Science	4	A Biological Science	4
	16		16

JUNIOR YEAR

1st Semester		*2nd Semester*	
Foreign Language 303	3	Foreign Language 4xx	3
Foreign Language 331	3	Foreign Language 4xx	3
Psychology 201	4	Fine Arts Elective	3
Social Science[1]	3	Psychology 202	3
Health Education 101	1	Elective	3
Elective	3		
	17		15

SENIOR YEAR

1st Semester		*2nd Semester*	
		Education 304	3
Foreign Language 4xx	3	Psychology 302	3
Phil. or Comp. Rel.	3	Education 402	3
Foreign Language 309	3	Education 451	6
Foreign Language 49x	3		
Fine Arts Elective	3	Total Hours: 125	
Physical Education 101	1		
	16		

[1] Social Science options for Secondary Education candidates are: Anthropology, Political Science, Sociology, Economics, and Geography.

FRENCH

A major in French leading to the B.A. degree consists of French 201, 202, 301, 302, 303, 304, 331, and at least 12 hours on the 400 level, including either 491 or 492. Related work, to be approved by the department, is indicated in the Suggested Curricula above. Curricula for teaching candidates must also be approved by the Department of Education. Teaching candidates with a major in French must also take French 309.

101. ELEMENTARY FRENCH. (3) Fundamentals of French grammar and phonetics, reading, and conversation. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY FRENCH. (3) Prerequisite: French 101, or permission of the department. Continuation of French 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE FRENCH. (3) Prerequisite: French 102, or permission of the department. Review grammar, with composition and conversation based upon readings on French culture and civilization. Three class hours and two hours of laboratory work per week.

202. INTERMEDIATE FRENCH. (3) Prerequisite: French 201, or permission of the department. Review grammar, composition, and conversation, based upon readings in French prose. Three class hours and two hours of laboratory work per week.

301. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: French 202, or permission of the department. For prospective teachers of French and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED FRENCH GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: French 202, or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF FRENCH LITERATURE TO 1800. (3) Prerequisite: French 202, or permission of the department. Selected readings in prose and poetry from the Middle Ages

to 1800. Emphasis on each literary movement. Book reports on collateral readings.

304. SURVEY OF FRENCH LITERATURE SINCE 1800. (3) Prerequisite: French 202, or permission of the department. Continuation of French 303. Book reports on collateral readings.

309. FRENCH CIVILIZATION. (3) Prerequisite: French 202, or permission of the department. Composition and conversation based on readings in French culture, civilization, art, and literature. Three class hours per week.

331. FRENCH PHONETICS. (3) Prerequisite: French 202, or permission of the department. Study of the sounds of the French language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week.

401. FRENCH LITERATURE OF THE TWENTIETH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

403. FRENCH LITERATURE OF THE NINETEENTH CENTURY. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

405. THE AGE OF ENLIGHTENMENT. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

408. THE CLASSICAL PERIOD. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

416. FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE. (3) Prerequisite: French 303 and 304, or permission of the department. Collateral readings.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Special problems in the major field. Collateral readings and term papers. Either 491 or 492 is required of all French majors.

492. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Intensive study of special areas or literary figures in the major field. Either 491 or 492 is required of all French majors.

GERMAN

101. ELEMENTARY GERMAN. (3) Fundamentals of German grammar and phonetics, reading, and conversation. Three class

hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY GERMAN. (3) Prerequisite: German 101 or permission of the department. Continuation of German 101. Three class hours and two hours of laboratory work per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE GERMAN (3) Prerequisite: German 102 or permission of the department. Review grammar, composition, and conversation based upon readings on the culture and civilization of German-speaking countries. Three class hours and two hours of laboratory work per week.

202. INTERMEDIATE GERMAN (3) Prerequisite: German 201 or permission of the department. Continuation of German 201. Review grammar, composition, and conversation, based upon readings in German prose. Three class hours and two hours of laboratory work per week.

301. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION I. (3) Prerequisite: German 202 or permission of the department. For prospective teachers of German and students who want intensive oral and written work in the language. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

302. ADVANCED GERMAN GRAMMAR, COMPOSITION, AND CONVERSATION II. (3) Prerequisite: German 202 or permission of the department. Informal conversation on diversified prepared topics, newspaper and magazine articles. Students will be given maximum opportunity for self-expression. Book reports on collateral readings. Three class hours and two hours of laboratory work per week.

303. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports on collateral readings.

304. SURVEY OF GERMAN LITERATURE. (3) Prerequisite: German 202 or permission of the department. German literature since classicism. Book reports on collateral readings.

309. GERMAN CIVILIZATION. (3) Prerequisite: German 202 or permission of the department. Composition and conversation based on readings in the culture, civilization, art, and literature of German-speaking countries.

311. SELECTED READINGS IN GERMAN LITERATURE I.

(3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

312. SELECTED READINGS IN GERMAN LITERATURE II. (3) Prerequisite: German 202 or permission of the department. Book reports on collateral readings.

321. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

322. TECHNICAL GERMAN. (3) Prerequisite: German 202 or permission of the department. Readings and translations of German publications in the student's major field or area of concentration.

331. GERMAN PHONETICS. (3) Prerequisite: German 202 or permission of the department. Study of the sounds of the German language, their production, and their representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation. Three class hours and two hours of laboratory work per week. Transcription exercises and student recordings.

401. GERMAN CLASSICISM. (3) Prerequisite: two 300-level courses or permission of department. Storm and Stress. Early classicism. Book reports on collateral readings.

402. GERMAN ROMANTICISM. (3) Prerequisite: two 300-level courses or permission of department. Late classicism and romanticism. Book reports on collateral readings.

407. GERMAN POETRY FROM HOELDERLIN TO THE PRESENT. (3) Prerequisite: two 300-level courses or permission of department. An analysis of the chief lyric poets, literary movements, and types of German poetry.

414. TWENTIETH CENTURY GERMANY AS REFLECTED IN LITERATURE. (3) Prerequisite: two 300-level courses or permission of department. Political and social events from World War I to the present day, as reflected in German literature. Book reports on collateral readings.

RUSSIAN

101. ELEMENTARY RUSSIAN. (3) Fundamentals of Russian grammar, with particular stress on correct pronunciation and self-expression, through practice in the language laboratory. Three class hours and two laboratory periods a week.

102. ELEMENTARY RUSSIAN. (3) Prerequisite: Russian

101. Continuation of Russian 101. Graded readings. Three class hours and two laboratory periods a week.

201. INTERMEDIATE RUSSIAN. (3) Prerequisite: Russian 102 or permission of the department. Review grammar, with conversation and composition based upon readings in Russian culture and civilization. Three class hours and two hours of laboratory work per week.

202. INTERMEDIATE RUSSIAN. (3) Prerequisite: Russian 201 or permission of the department. Continuation of grammar, conversation, and composition skills, based on readings in Russian literature. Three class hours and two hours of laboratory work per week.

SPANISH

A major in Spanish leading to the B.A. degree consists of Spanish 201, 202, 301, 302, 303, 304, 309 or 310, and 12 hours of Spanish courses on the 400 level, which must include Spanish 491. Students who plan to teach in public secondary schools must also take Spanish 331. Related work, to be approved by the department, is indicated in the Suggested Curricula. Curricula for teaching candidates must also be approved by the Department of Education.

101. ELEMENTARY SPANISH. (3) Introduction to Spanish, with emphasis on auditory comprehension, oral production and control of structure. Three hours of class and two hours of laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

102. ELEMENTARY SPANISH. (3) Continuation of Spanish 101, with greater attention to reading and writing. Three hours of class and two hours laboratory per week. No college credit given if student has received credit for same language to satisfy entrance requirement.

201. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 102 or permission of department. Reinforcement and expansion of skill mastery developed in elementary courses on basis of selected readings and analysis of structure. Three hours of class and two hours laboratory per week.

202. INTERMEDIATE SPANISH. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 201. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish-American literature. Three hours of class and two hours of laboratory per week.

301. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of the department. For prospective teachers of Spanish and students who want intensive oral and written work in the language. Both written and oral composition. Reports on collateral reading. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

302. ADVANCED GRAMMAR AND COMPOSITION. (3) Prerequisite: Spanish 202 or permission of department. Advanced structural analysis and oral and written composition. Reports of collateral readings. Three hours of class and two hours laboratory per week. Course conducted in Spanish.

303. INTRODUCTION TO SPANISH LITERATURE I. (3) Prerequisite: Spanish 202 or permission of department. Reading and analysis of representative master works of Spanish literature from its origins through the Golden Age. Course conducted in Spanish.

304. INTRODUCTION TO SPANISH LITERATURE II. (3) Prerequisite: Spanish 202 or permission of department. Continuation of Spanish 303 with emphasis on literature of the nineteenth and twentieth centuries. Course conducted in Spanish.

309. SPANISH CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An overview of the cultural heritage of peninsular Spain. Lecture, discussion, recitation on basis of assigned readings. Course conducted in Spanish.

310. SPANISH AMERICAN CIVILIZATION AND CULTURE. (3) Prerequisite: Spanish 202 or permission of department. An introduction to the cultural heritage of the eighteen Spanish American countries. Lecture, discussion, recitation on the basis of assigned readings. Course conducted in Spanish.

331. SPANISH PHONETICS. (3) Prerequisite: Spanish 202 or permission of department. Detailed analysis of description and production of Spanish sounds. Practical exercises to include phonetic transcription and recordings. Two hours of class and two hours of laboratory a week.

401. MODERN SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of the department. Survey of peninsular literature from *costumbrismo* through the Generation of 1898. Lectures, discussions and reports on basis of extensive collateral reading. Course conducted in Spanish.

402. CONTEMPORARY SPANISH LITERATURE. (3) Prerequisite: two 300 level courses or permission of department.

Treatment of major literary developments from the Generation of 1898 to the present day. Lectures, discussions and reports on the basis of extensive collateral readings. Course conducted in Spanish.

405. THE GOLDEN AGE OF SPANISH LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. El Lazarillo through El Criticon. Lecture, discussion and reports on basis of extensive collateral reading. Course conducted in Spanish.

406. THE GOLDEN AGE OF SPANISH LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Study of works of the leading dramatists and poets of the period with emphasis on Lope, Tirso de Molina, Ruiz de Alarcon and Calderon. Lectures, discussions and reports on basis of extensive collateral readings. Course conducted in Spanish.

407. SPANISH LITERATURE OF THE MIDDLE AGES AND RENAISSANCE. (3) Prerequisite: two 300 level courses or permission of department. Lectures, discussions and reports on basis of extensive collateral readings.

409. SPANISH AMERICAN LITERATURE I. (3) Prerequisite: two 300 level courses or permission of department. Survey of Spanish American literature from the colonial period through Romanticism. Lectures, discussion and reports on the basis of assigned readings. Course conducted in Spanish.

410. SPANISH AMERICAN LITERATURE II. (3) Prerequisite: two 300 level courses or permission of department. Introduction to the literature of the eighteen Spanish American countries from Modernism through the contemporary period. Lectures, discussion, and reports on the basis of assigned readings. Course conducted in Spanish.

491. SENIOR COLLOQUIUM. (3) Prerequisite: Senior standing and permission of the department. Comprehensive review of the major field.

492. SELECTED READINGS IN SPANISH. (3) Prerequisite: two 300 level courses or permission of department. Consideration in depth of a predetermined author or literary movement. Course conducted in Spanish.

GEOGRAPHY AND GEOLOGY

Associate Professor Schul, *Chairman;* Assistant Professors Alker, Orr; Instructors Clay, Mills (Part-time)

GEOGRAPHY

A major in Geography leading to the B.A. degree consists of 28 hours of Geography and will include Geography 101, 102, 201, 202, and 401. Geography majors will normally take Geography 101, 102, 201, and 202 before taking 300 level and above courses in the department.

Related work to be chosen with the departmental advisor will total 18 hours. Students contemplating graduate study in Geography will be encouraged to undertake related work either in the social or the natural sciences and to develop reading proficiency in German, French, or Russian.

The curriculum offerings include a broad range of courses, providing a sound basis for a major for anyone wishing to pursue graduate work. This curriculum further places strong emphasis on economic geography in order to prepare majors for employment in the urban-regional planning area of economic geography.

101. EARTH SCIENCE—GEOGRAPHY. (4) A study of basic geographical principles and processes in earth science: the earth—its position and motions; the grid system; weather; climate; the waters; soils; and vegetation. Three lecture hours and one laboratory period of two hours a week.

102. REGIONAL WORLD GEOGRAPHY. (3) A world regional study which emphasizes the distinctly human responses of man to various geographic situations throughout the world. The nature and development of cultural regions will be studied.

201. ECONOMIC GEOGRAPHY. (3) Prerequisite: Geography 101 or 102. A study of the location and functioning of economic activity with an emphasis on physical and human geographic factors in analyzing patterns of production, exchange, and consumption.

202. ELEMENTARY CARTOGRAPHY. (3) Prerequisite: Geography 101 or consent of the department. Emphasis to be focused on tools of map making, map design and construction and the interpretation of aerial photographs and topographic maps. One lecture hour and two laboratory periods of two hours a week.

301. GEOGRAPHY OF LATIN AMERICA. (3) A regional study of the basic human and physical differences from place to place which affect economic, social, and political conditions of the Latin American countries.

303. GEOGRAPHY OF NORTH AMERICA. (3) A regional study of the physical features of North America and their

relationships to the economic and cultural development of the United States and Canada.

305. GEOGRAPHY OF EUROPE. (3) A regional study of geographic conditions and their relationship to economic, social and political problems of Europe.

307. GEOGRAPHY OF ASIA. (3) A regional study emphasizing the relationships that exist between the physical environment and the cultural patterns in geographic regions of Asia.

310. HISTORICAL GEOGRAPHY OF ANGLO-AMERICA. (3) A study of the evolution of existing geographical patterns in the United States by examining the geography of selected historical periods.

311. POLITICAL GEOGRAPHY. (3) A study of the concepts of political geography as developed through topical studies of political phenomena as related to geographical features. Contemporary problems in international affairs will be considered.

312. URBAN GEOGRAPHY. (3) A study of the distribution, internal structure and functions of various types of urban developments. Field trips to be arranged.

313. MANUFACTURING GEOGRAPHY. (3) A study of factors relating to the nature, locations, and development of manufacturing industries. Emphasis upon location theory, classification of manufactures, principal areas of manufacturing and other phases of economic geography. Field trips to be arranged.

314. RESOURCE PLANNING. (3) A study of the resources of the United States especially as they pertain to population, their use and misuse, and present conservational practices as they relate to planning for future resource adequacy. Field trips to be arranged.

315. THE REGION AND PLANNING. (3) The regional concept and its application to urban and regional planning. Emphasis to be upon the techniques used in regional analysis.

331. AIR PHOTO INTERPRETATION. (3) Prerequisite: Geography 101 or consent of the department. The examination and interpretation of aerial photographs with the aid of stereoscopes. Emphasis is to be placed on the identification of physical and cultural features and their patterns. One lecture hour and two laboratory periods of two hours a week.

341. PHYSIOGRAPHY OF THE UNITED STATES. (3) A study of the physiographic regions of the United States, the genesis and pattern of the major landforms included within

each, their distinctive characteristics, and their cartographic interpretation.

344. WEATHER AND CLIMATE. (3) A study of the elements and controls of weather and climate; world patterns of climate; and the relationship of climate to man's activity.

401. SEMINAR IN GEOGRAPHY. (3) Prerequisite: consent of the department. The nature of geography, current trends in the field, present day geographers and schools of thought. Geography's place among the disciplines.

402. TOPICS IN URBAN-ECONOMIC GEOGRAPHY. (3) Prerequisite: consent of the department. An intensive examination of a topic in urban-economic geography. To be offered as special circumstances require.

GEOLOGY

102. EARTH SCIENCE—GEOLOGY. (4) A study of the basic geological principles and processes in earth science; the earth as a planet; treatment of physical processes shaping the earth; earth materials and landforms. Three lecture hours and one laboratory period of two hours a week.

201. MINERALOGY. (4) Identification and study of minerals, their crystal structure, and economic importance. Two lecture hours and two laboratory periods of two hours a week.

351. HISTORICAL GEOLOGY. (4) Prerequisite: Geology 102. The history of the earth from its beginning to the present. The study of successive faunal and floral assemblages as they appear in the rock record. Three lecture hours and one laboratory period of two hours a week.

352. VERTEBRATE PALEONTOLOGY. (4) Prerequisite: Geology 102 or Biology 101 (This course is the same as Biology 352). Evolution of vertebrate animals from the first fishes to man. Three lecture hours and one laboratory period of two hours a week.

361. GEOMORPHOLOGY. (3) Prerequisite: Geology 102. Treatment of the processes shaping the earth's surface, genesis of land forms, and the theories related to landform development.

362. STRUCTURAL GEOLOGY. (4) Prerequisite: Geology 102. The study of the major structural features of the earth. Terminology, geometry, and genesis of faults and folds. Three lecture hours and one laboratory period of two hours a week.

371. PETROLOGY. (3) Prerequisite: Geology 201. The study

of rocks in hand specimens, basic chemistry of rocks, and their economic importance. Three lecture hours a week. Field trips to be arranged.

372. CRYSTALLOGRAPHY. (4) Study of crystal structure, arrangement of matter in crystals and the basic concepts of symmetry and space groups. Three lecture hours and one laboratory period of two hours a week.

HEALTH AND PHYSICAL EDUCATION

Assistant Professor Murphy, *Acting Chairman;* Instructors Bostian, Fleming

HEALTH EDUCATION

101. HEALTH EDUCATION. (1) A general introductory course. Basic ideas of human anatomy, physiology, and chemistry are applied toward an understanding of human health problems. Two lecture hours a week.

409. HEALTH EDUCATION LABORATORY. (3) Prerequisite: Education 303. Health instruction, principles of health teaching for the elementary grades.

PHYSICAL EDUCATION

101. FOUNDATIONS OF PHYSICAL ACTIVITY. (1) The application of various physical training programs designed to improve and maintain physical fitness. One-sixth of the meeting time will be devoted to lectures on physiological and psychological aspects of physical training. Three one-hour meetings a week.

102. TEAM SPORTS. (1) The skills and rules of two sports selected from soccer football, rugby football, field hockey, speedball, and volleyball will be taught. Three hours each week.

114. FENCING. (1) The skills and rules of the sport of fencing will be taught. Three hours each week.

409. PHYSICAL EDUCATION LABORATORY. (3) Prerequisite: Education 303. Physical education instruction, principles of physical education teaching for the elementary grades.

HISTORY

Professors Rieke, *Chairman*, Abernathy, Hall; Assistant Professors Morrill, Perzel, Ploger, Robbins; Instructors Deal, Yielding

A major in History leading to the B.A. degree, except for students in the elementary certification program, consists of 30 semester hours of history, including Modern Western Civilization (101-102) and American History (201-202). Related work consists of 15 semester hours in one discipline.

A major in History leading to the B.A. degree for students in the elementary certification program consists of 27 hours of history, including Modern Western Civilization (101-102) and American History (201-202). Related work consists of 21 hours as outlined in the general degree requirements of the elementary certification program.

Certification in history (Secondary School Teaching) is made possible by satisfactory completion of a major.

Students majoring in history, who plan to be certified in both history and social studies (Secondary School Teaching), must complete in addition to their requirements for a history major, 21 semester hours in three or more of the following disciplines: anthropology, economics, geography, political science, sociology. Any one of these disciplines may be counted for related work.

Except by special permission, no student may enroll in a 300-400 level course without Junior-Senior standing.

101. MODERN WESTERN CIVILIZATION TO 1815. (3) This course commences with a broad survey of Ancient and Medieval contributions to Modern Western Civilization and then treats intensively the development of Western Civilization from the Renaissance to 1815.

102. MODERN WESTERN CIVILIZATION FROM 1815 TO THE PRESENT. (3) Prerequisite: History 101. Continuation of History 101 with greater emphasis on developments outside the Atlantic community of Western Civilization.

201. AMERICAN HISTORY. (3) Survey of American history from the earliest times to 1865.

202. AMERICAN HISTORY. (3) Survey of American history from 1865 until the present.

303. HISTORY OF GREECE. (3) A brief study of the Ancient Near East followed by an intensive study of Greece to 332 B.C.

304. HISTORY OF ROME. (3) From the beginning of civilization in Italy to the reign of Justinian and the decline of the Empire in the West.

305. ANCIENT HISTORY. (3) From the earliest civilizations until the fourth century A.D.

306. MEDIEVAL HISTORY. (3) Political and cultural developments from the late Roman Empire until the Renaissance.

307. RENAISSANCE AND REFORMATION. (3) The intellectual and religious transformations of the early modern period and their political repercussions, 1300-1648.

311. RUSSIAN HISTORY. (3) Survey of Russian history until 1825.

312. RUSSIAN HISTORY. (3) Survey of Russian history from 1825 until the present.

317. NINETEENTH CENTURY EUROPE, 1814-1914. (3) A survey of the major political developments in European history from the Congress of Vienna. Emphasis will be placed on liberalism, nationalism, imperialism, and the diplomatic agreements leading to World War I.

318. TWENTIETH CENTURY EUROPE, 1914 TO THE PRESENT. (3) A review of the causes and results of World War I followed by an intensive study of the problems of peace, rise of new governments, collapse of collective security, World War II, and the post-war period.

333. AMERICAN ECONOMIC HISTORY. (3) Prerequisite: consent of department. Development of a national economy, including monetary and banking problems, industrialization, and problems of labor and agriculture.

334. AMERICAN LABOR HISTORY. (3) Prerequisite: consent of department. Life and thought of American workingmen from the colonial period to the present, with attention to both the individual and to the development of labor organizations.

336. ORIGINS OF THE AMERICAN CONSTITUTION. (3) Prerequisite: History 201 or 202. The historical and philosophical background which led to the adoption of the American Constitution. Emphasis is placed on the Constitution's heritage from the Enlightenment, and the English and Colonial background. The course traces the writing and development of the Constitution through the Marshall Court.

337. DEVELOPMENT OF THE AMERICAN CONSTITUTION. (3) Prerequisite: History 201 or 202. The course traces the historic development of the Constitution from the

Marshall Court to the present. Emphasis is placed on the Constitution's changing role in the development of Modern America.

339. HISTORY OF NORTH CAROLINA. (3) Prerequisite: History 201 and consent of department. Emphasis on the colonial developments and on the constitutional, educational and transportation developments of the ante-bellum period.

340. THE FRONTIER IN AMERICAN HISTORY. (3) A study of the influence of the moving frontier line on the historical development of the United States. Emphasis will be placed on the trans-Mississippi western United States. For comparative purposes some considerations will be given to other world frontiers.

343. COLONIAL AMERICA. (3) Prerequisite: History 201. Colonial history from the discoveries to 1763.

344. THE AMERICAN REVOLUTION AND EARLY NATION. (3) Prerequisite: History 201. The achievement of independence and the formation of a national government, 1763-1800.

361. BRITAIN TO 1485. (3) Survey of British history with emphasis on institutional, cultural, economic, and imperial developments.

362. MODERN BRITAIN, 1485-1789. (3) Continuation of History 361 with some treatment of the British Empire.

363. MODERN BRITAIN AND THE BRITISH EMPIRE SINCE 1789. (3) Continuation of History 362 with greater emphasis on the Empire and Commonwealth.

381. HISTORY OF LATIN AMERICA. (3) A survey of the cultural, political, and economic development of Latin America. The blending of Indian, European, and African elements into a new civilization.

401. THE AGE OF ABSOLUTISM. (3) The problems of statecraft in the major continental countries, with some emphasis on cultural developments, 1648-1789.

402. FRENCH REVOLUTION AND NAPOLEON. (3) The changes in French politics and society and their effect on the Western World, 1789-1815.

417. EUROPEAN DIPLOMATIC HISTORY, 1756-1848. (3) A survey of the major developments in European diplomacy from the Diplomatic Revolution to the revolutions of the mid-nineteenth century.

418. EUROPEAN DIPLOMATIC HISTORY, 1848 TO THE PRESENT. (3) A survey of the major developments in European diplomacy beginning with the revolutions of the mid-nineteenth century.

431. AMERICA IN CRISIS, 1824-1860. (3) Prerequisite: History 201. A consideration of the new American nation in crisis. Attention is given to the development of nationalism under Jackson, the expansion of the new nation, the growth of sectionalism, and the events leading to secession.

432. CIVIL WAR AND RECONSTRUCTION, 1860-1877. (3) Prerequisite: History 201 or 202. A study of the American people in war and post-war adjustment. Emphasis is placed on the political, social, and economic conditions of the North and South during the Civil War and Reconstruction period.

433. AMERICAN SOCIAL AND INTELLECTUAL HISTORY TO 1860. (3) Prerequisite: History 201. Development of American social institutions and thought from the beginnings to the Civil War. The course is conducted as a colloquium, combining lectures, discussions, extensive reading, and oral reports and a research paper by each student.

434. AMERICAN SOCIAL AND INTELLECTUAL HISTORY SINCE 1860. (3) Prerequisite: History 202. Continuation of History 403 from the Civil War to the present.

461. TUDOR ENGLAND, 1485-1603. (3) Treatment in depth of the English Reformation, the English Renaissance, and the creation of English naval and economic power.

462. STUART ENGLAND, 1603-1714. (3) Treatment in depth of the socio-economic and political phases involved in the Civil War, Restoration and Glorious Revolution, and International and Colonial involvement.

491. TUTORIAL IN HISTORY. (3) Prerequisite: consent of the department. Seminar in historical method, bibliography, and purpose of historical writing. A major research paper under the direction of a staff member.

492. SEMINAR IN HISTORY. (3) Prerequisite: consent of department. An intensive examination of a subject in History to be offered as special circumstances require.

HUMANITIES

350. TOPICS IN HUMANITIES. (3) (May be repeated for credit with consent of the student's major department.) Prerequisite: Junior standing and consent of the sponsoring depart-

ments. Topics chosen from the general area of the humanities in order to demonstrate relationships and inter-disciplinary influences.

MATHEMATICS

Professors Schell, *Chairman;* Cone, Goodrum; Associate Professors Embry, Markham, Nixon; Assistant Professors Davis, Fuller, Linder, Stewart; Visiting Professor Basavappa; Instructors King, Leiva, Roth, Sornberger, Wright, Bernstein (Part-time).

A major in mathematics for the B.A. degree consists of 27 semester hours of mathematics courses numbered above 104 and approved by the department. Related work must be approved by the department.

A major in mathematics for the B.S. degree consists of 40 semester hours of mathematics courses numbered above 104 and approved by the department. Related work must be approved by the department. A student planning to study mathematics in graduate school should take French, German or Russian.

An entering freshman who plans to take Mathematics 141, in particular a mathematics major, will first enroll in Mathematics 103 and 104, unless exempted by the department. It is recommended that a prospective freshman major enroll in these courses during the summer session immediately preceding his freshman year.

Specific requirements for the B.A. and B.S. degrees will vary with the specific objectives of the student. Some objectives with appropriate courses follow:

A. Graduate work in Mathematics.
   Essential: 141, 142, 242, 343, 344, 363, 364, 481, a B.S. in Mathematics.
   Desirable: 241, 361, 443, 381.

B. Emphasis in Applied Mathematics.
   Essential: 141, 142, 241, 242, 371, 372, 237, 322.
   Desirable: 323, 343, 361, 311, 363.

C. Emphasis in Statistics.
   Essential: 141, 142, 221, 237, 223, 322, 323.
   Desirable: 333, 334, 311, 312.

D. Emphasis in Computer Science.
   Essential: 233, 235, 237, 333, 334, 141, 142, 221, 222.
   Desirable: 241, 311 223, 322.

E. Elementary Education.
Essential: 104, 141, 142, 403, one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a B.A. in Mathematics.
Desirable: 221, 222, 237, 241, 242.

F. Secondary Education.
Essential: 104; 141; 142; one of 102, 103, 241, 361; one 3-hour course in geometry and one 3-hour course in algebra, each approved by the department; a minimum of 30 semester hours in mathematics.
Desirable: 221, 222, 237, 242.

Combinations of the above will permit a student to achieve other degree objectives.

The B.S. Degree in Mathematics, Curriculum Outline

FRESHMAN YEAR

1st Semester		*2nd Semester*	
Mathematics 141	4	Mathematics 142	4
English 101	3	English 102	3
Foreign Language 201	3	Foreign Language 202	3
Science	4	Science	4
	14		14

SOPHOMORE YEAR

1st Semester		*2nd Semester*	
Mathematics 241	4	Mathematics 242	4
Mathematics	3	Mathematics	3
Humanities	3	Humanities	3
Social Science	3	Social Science	3
Related Work	3-4	Related Work	3-4
	16-17		16-17

JUNIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	6	Mathematics	6
Related Work	3-4	Related Work	3-4
Electives	6	Electives	6
	15-16		15-16

SENIOR YEAR

1st Semester		*2nd Semester*	
Mathematics	3	Mathematics	3
Related Work	3-4	Related Work	3-4
Electives	9	Electives	9
	15-16		15-16

The B.A. Degree in Mathematics, Curriculum Outline

The curriculum outline for the B.A. degree is essentially the same as for the B.S. degree, except that up to 13 semester hours of mathematics courses may be replaced by an equal number of semester hours of electives.

101. ELEMENTARY ALGEBRA. (3) Sets, logic, probability and an introduction to computers.

102. ELEMENTARY ANALYSIS. (3) Prerequisite: Mathematics 101 or 103. A brief treatment of basic concepts of differential and integral calculus with applications to the social and life sciences.

103. ALGEBRA. (3) Sets, logic, an axiomatic treatment of the real numbers as a complete ordered field, solution sets of equations and inequalities, binary relations, functions and binary operations.

104. VECTOR ALGEBRA. (3) Prerequisite or corequisite: Mathematics 103. Algebra and geometry of vectors, a vector approach to trigonometry, vector descriptions of lines and planes, and matrix representation of linear transformations.

132. INTRODUCTION TO COMPUTING TECHNIQUES: (1) A study of digital computing systems, programming of a digital computer, and the solution of problems on a digital computer. Two laboratory hours per week.

141. INTRODUCTORY ANALYSIS I. (4) Prerequisite: Mathematics 103 and 104, with a grade of C or better in each. (If a student can show to the satisfaction of the Mathematics Department that his knowledge of Mathematics 103 and 104 is adequate, he may be exempted from taking one or both of these courses as prerequisites for Mathematics 141.) Mathematics 141 includes linear spaces and transformations, the differential calculus of real-valued functions and the differential calculus of vector functions. Three lecture hours and two problem hours per week.

142. INTRODUCTORY ANALYSIS II. (4) Prerequisite: Mathematics 141 with a grade of C or better. The integral calculus of vector functions, including the Riemann integral on the real line. Three lecture hours and two problem hours per week.

221. INTRODUCTION TO PROBABILITY AND STATISTICS I .(3) Prerequisite: Mathematics 102 or consent of the Department. The first course of a two semester sequence of a modern introduction to the mathematical theory of probability and statistics with applications.

222. INTRODUCTION TO PROBABILITY AND STATISTICS II. (3) Prerequisite: Mathematics 221. A continuation of Mathematics 221.

223. INRODUCTION TO PROBABILITY AND STATISTICS III. (3) Prerequisites: Mathematics 141 or consent of the department. An introduction to the linear model as a foundation for least squares estimation and analysis of variance.

233. DIGITAL COMPUTING TECHNIQUES A. (1) Prerequisites: Mathematics 132, Mathematics 102 or 141 or consent of the department. A study of advanced programming techniques that will extend the student's programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of business administration and the behavioral sciences. Two laboratory hours per week.

235. DIGITAL COMPUTING TECHNIQUES B. (1) Prerequisites: Mathematics 132 and 141, or consent of department. A study of advanced programming techniques that will extend the students programming ability acquired in Mathematics 132. The primary areas of interest will be in the fields of the physical sciences. Two laboratory hours per week.

237. INTRODUCTION TO ALGORITHMIC PROCESSES: (3) Prerequisite or Corequisite: Mathematics 132 or consent of the department. The language, notation, and computational methods necessary for a study of algorithms. The application of a specific procedure-oriented language to solve numerical and non-numerical problems using a digital computer.

241. INTRODUCTORY ANALYSIS III. (4) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the Mathematics Department. Introduction to systems of ordinary differential equations and the requisite topics in analysis needed for their study including infinite series. Three lecture hours and two problem hours per week.

242. INTRODUCTORY ANALYSIS IV. (4) Prerequisite: Mathematics 241, with a grade of C or better, or consent of department. Analytic function theory, complex integration, sequences, series, and residue calculus with applications to Fourier and Laplace transforms and other areas, as time permits. Three lecture hours and two problem hours per week.

311. OPERATIONS RESEARCH I. (3) Prerequisite: Mathematics 222 or consent of the department. The first course of a two semester sequence, including matrix algebra, convex sets, linear programming, and the theory of games.

312. OPERATIONS RESEARCH II. (3) Prerequisite: Mathematics 311. A continuation of Mathematics 311.

322. PROBABILITY AND STATISTICS I. (3) Prerequisite: Mathematics 142 with a grade of C or better, or consent of the department. A first course in a two-semester sequence including continuous probability distributions, random variables, limit theorems, stochastic processes, estimation, and hypothesis testing.

323. PROBABILITY AND STATISTICS II. (3) Prerequisites: Mathematics 322. A continuation of Mathematics 322.

333. COMPUTER ORGANIZATION AND PROGRAMMING. (3) Prerequisites: Mathematics 237 or consent of department. Computer structures; machine representation of information; computer control, instruction codes and operations; subroutines, linkages, macros, interpretive and assembly systems. Two lecture hours and two laboratory hours per week.

334. INFORMATION STRUCTURES. (3) Prerequisite: Mathematics 333 or consent of department. Description of a data base and its structure; concepts of records, files, trees, and lists; sorting, searching and merging of information files; referencing and cross-referencing of files based on list processing. Two lecture hours and two laboratory hours per week.

343. ANALYSIS I. (3) Prerequisite: Mathematics 242 with a grade of C or better, or consent of the department. The first course of a three-semester sequence in the analysis of real-valued functions. Mathematics 343 will include the following topics: limits, continuity, uniform convergence, uniform continuity and Riemann and Lebesque integration.

344. ANALYSIS II. (3) Prerequisite: Mathematics 343. A continuation of Mathematics 343.

350. TOPICS IN MATHEMATICS. (Two or three semester hours credit. May be repeated for additional credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as set theory, linear algebra and geometry, and probability. This course is designed to serve particular needs, not served by other departmental offerings, such as the needs of the National Science Foundation Institute for Teachers.

361. LINEAR ALGEBRA. (3) Prerequisite: Mathematics 142 or consent of the department. Algebra and geometry of vector spaces, linear transformations and matrices, linear equations and characteristic values.

362. NUMBER THEORY. (3) Prerequisite: consent of the department. Introductory topics from the theory of rational and algebraic integers.

363. MODERN ALGEBRA I. (3) Prerequisite: Mathematics 242 or consent of the department. The first course of a two semester sequence covering topics in group theory, rings and ideals, fields, and Galois theory.

364. MODERN ALGEBRA II. (3) Prerequisite: Mathematics 363. A continuation of Mathematics 363.

371. APPLIED MATHEMATICS I. (3) Prerequisite: Mathematics 241 and Mathematics 242, each with a grade of C or better, or consent of the department. The first course of a two-semester sequence in applied mathematics including the following topics: calculus of variations, boundary value problems, separation of variables, Green's functions, integral equations and Fourier transforms.

372. APPLIED MATHEMATICS II. (3) Prerequisite: Mathematics 371. A continuation of Mathematics 371.

381. FUNDAMENTAL CONCEPTS OF GEOMETRY. (3) Prerequisite: Mathematics 142 or consent of the department. Foundations of geometry, affine geometry, comparison of Euclidean and non-Euclidean geometries.

391. SEMINAR. (2) Prerequisite: consent of the department. Readings, study and discussion designed to develop the student's ability to study independently and to present his results properly.

392. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 391.

403. ARITHMETIC IN THE SCHOOL. (3) Prerequisite: Mathematics 102 or equivalent. A study of the number systems with emphasis placed upon the basic concepts and meanings, properties of addition, multiplication, inverses, systems of numeration, and the number line appropriate for each grade. (Does not count toward a major in mathematics.)

409. HISTORY OF MATHEMATICAL THOUGHT. (3) Prerequisite: Mathematics 102 or 141. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. (Does not count toward a major in mathematics.)

443. ANALYSIS III. (3) Prerequisite: Mathematics 344. A continuation of Mathematics 344.

450. SELECTED TOPICS IN MATHEMATICS. (Two or three semester hours credit, but may be repeated for credit with the approval of the department.) Prerequisite: consent of the department. Topics chosen from such fields as topology, differen-

tial geometry, complex analysis, applied mathematics, or modern algebra.

481. INTRODUCTION TO TOPOLOGY. (3) Mathematics 242 or consent of the department. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axiom, compactness and connectedness.

491. SEMINAR. (2) Prerequisite consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Mathematics 491.

MUSIC

(See Fine Arts)

NURSING

Professor Brocker, *Chairman;* Assistant Professors Caddell, Smith; Instructor Lowder.

For the degree of Bachelor of Science with a major in Nursing, 46 semester hours in Nursing and 25 semester hours in related work are required.

All clinical courses are taught in related hospital and other community health agencies.

It is recommended that Chemistry, Biology and a foreign language be studied in secondary school as preparation for the program in Nursing.

Course of Study for a Bachelor of Science Degree with a Major in Nursing

FRESHMAN YEAR

English 101	3	English 102	3
Mathematics 101 or Foreign Language 201	3	Mathematics 102 or Logic or Foreign Language 202	3
Biology 101	4	Nursing 102	3
Chemistry 101	4	Chemistry 102	4
		Elective	3
	14		16

SOPHOMORE YEAR

Biology 204	4	Biology 203	4
Sociology 201	3	Psychology 201	4
Nursing 201	4	Nursing 202	4
Elective (Hum.)	3	Nursing 204	2
	14		14

JUNIOR YEAR

Nursing 301	5	Nursing 302	5
Elective (Hum.)	3	Sociology 303	3
Elective (Soc. Science)	3	Psychology 202	3
Elective	3	Elective	3
Psychology 307	3	Elective	3
	17		17

SENIOR YEAR

Elective	3	Elective	3
Nursing 401	5	Nursing 402	5
Nursing 403	5	Nursing 404	4
Nursing 491	2	Nursing 492	2
	15		14

102. ECOLOGY OF MAN I. (3) The focus of this course is directed toward understanding the relationship of the ill person to his family and community. Major health problems and facilities provided by society for meeting health needs will be included in the content. Lectures, field trips.

201. FUNDAMENTALS OF NURSING. (4) Prerequisite or corequisite: Nursing 102. Study of the basic concepts and principles essential for the nursing care of adults and children. Emphasis is placed on the correlation of principles of nursing with concepts of behavioral and natural sciences. Two hours lecture, six hours laboratory assignment in patient care areas.

202. FUNDAMENTALS OF NURSING II. (4) A continuation of Nursing 201.

204. ECOLOGY OF MAN II. (2) Prerequisite: Nursing 102 or consent of the department. A laboratory course. Students will work with carefully selected families, performing appropriate nursing functions. Individual and group study. Field work.

301. FUNDAMENTALS OF NURSING III. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and meet the needs of adults and children undergoing medical therapy or surgical intervention for acute and long term illness.

302. FUNDAMENTALS OF NURSING IV. (5) Prerequisites: Fundamentals 201, 202; Ecology of Man 102, 204. In the classroom and at the bedside, students learn to identify and to meet nursing needs of mothers (obstetric nursing), the new born, and children.

401. FUNDAMENTALS IN NURSING V. (Psychiatric Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. A study of fundamental principles and techniques of nursing

skills necessary for working with patients with emotional disorders. Emphasis is placed on nurse-patient relationships leading to development in interpersonal skills which result in therapeutic changes in behavior.

402. FUNDAMENTALS IN NURSING VI. (Advanced Patient Care). (5) Prerequisites: 200 and 300 level courses in nursing. This course will provide opportunities to increase knowledge and skill in the care of critically ill patients in the Intensive Care Units.

403. FUNDAMENTALS OF NURSING VII. (Public Health Nursing). (5) Prerequisites: 200 and 300 level courses in nursing. Considers concepts and philosophy of public health nursing; functions and responsibilities of the public health nurse in the community. Laboratory experience in community health nursing and public health agency settings.

404. FUNDAMENTALS OF NURSING VIII (Leadership in Nursing). (4) Prerequisites: 200 and 300 level courses in nursing. Study of principles of administration in nursing in hospitals and pubilc health agencies; focuses on management of nursing care of patients. Opportunities for participation in management functions will be provided in the hospital.

491. SEMINAR IN NURSING I. (2) Corequisites 401 or 402 and 404. Intellectual inspection and identification of common concepts in clinical nursing with the intent to broaden and deepen the understanding of specialties of nursing.

492. SEMINAR IN NURSING II. (2) Corequisites: 401 and 403 or 402 and 404. Dialogues in philosophy of nursing.

PHILOSOPHY

Associate Professor Witherspoon, *Chairman*; Assistant Professors Corkey, Fishman; Instructor Byerly

A major in philosophy consists of a minimum of twenty-eight semester hours in philosophy and includes courses 201, 205, 302, 303, and two senior seminars. Additional work is to be chosen from other philosophy offerings.

Required related work consists of fifteen hours, such work is to be chosen in consultation with the department representative or advisor. Students contemplating graduate study in philosophy are encouraged to undertake related work in the natural or physical sciences and to develop reading proficiency in German and French.

201. INTRODUCTION TO PHILOSOPHY. (3) An introduction to some of the basic concepts and problems of philo-

sophy. Typical problems such as freedom and determinism, mind-body interaction, the status of moral judgments, and the problem of perception. Readings from the works of representative philosophers, both classical and contemporary.

205. INTRODUCTION TO LOGIC AND SCIENTIFIC METHOD. (3) An introduction to the study of the general principles of deductive logic, both classical and symbolic, and an introduction to the nature of inductive reasoning and scientific explanation.

301. ETHICS. (3) A study of the development of ethical thought in ancient and modern times, with special references to present day ethical problems. Readings selected from classical and contemporary sources.

302. ANCIENT PHILOSOPHY. (3) Prerequisite: Philosophy 201 or junior standing. An inquiry into the history of Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, the Epicureans, Stoics, Skeptics, and Neoplatonists.

303. MODERN PHILOSOPHY FROM DESCARTES TO KANT. (3) Prerequisite: Philosophy 201 or junior standing. An inquiry into the development of modern philosophic and scientific thought. Readings selected from representative works in the seventeenth to the nineteenth centuries.

304. 19TH CENTURY PHILOSOPHY. (3) Prerequisite: Philosophy 302 or 303. Readings of selected works from major 19th century philosophers: Fichte, Hegel, Schopenhauer, Marx, Compte, Mill, Kierkegaard, Nietzsche.

305. CONTEMPORARY PHILOSOPHY. (3) Prerequisite: Philosophy 201. A study of the main movements and problems of contemporary philosophy: pragmatism, logical positivism, linguistic analysis, existentialism.

325. AESTHETICS. (3) Prerequisite: Philosophy 201 or junior standing. A study of the major theories of art, including readings from Aristotle, Kant, Nietzsche, Santayana, Collingwood, Croce, and Dewey. Emphasis is on the following categories: expression, criticism, the work of art, the creative process.

350. TOPICS. (3) May be repeated for additional credit with the approval of the department. Prerequisite: Consent of the department. Topics chosen from specific areas in philosophy such as symbolic logic, philosophy of science, freedom and determinism, philosophy in literature, detailed study of signif-

icant philosophic movements, or detailed study of the works of individual philosophers.

365. THEORY OF KNOWLEDGE. (3) Prerequisite: Philosophy 201. An analysis of the concepts of meaning, belief, knowledge, truth, and discussion of the analytic-synthetic distinction. Readings from historical and contemporary sources.

375. METAPHYSICS. (3) Prerequisite: Philosophy 201. An investigation of the history of metaphysics, focusing on the concept of experience. Authors to be discussed include Aristotle, Hume, Lewis, Hegel, James, Peirce, Dewey, and Whitehead.

401. PHILOSOPHY OF RELIGION. (3) Prerequisites: Philosophy 201 and junior standing. A discussion of the philosophical implications of religious experience. The definitions, development, and diverse forms of the problems of belief and reason in modern thought.

402. PHILOSOPHY OF THE EAST. (3) Prerequisite: Six hours of philosophy. A survey of thought in the East from ancient to modern times. Special emphasis on the philosophical concepts of Hinduism, Buddhism, Confucianism, and Taoism.

425. AMERICAN PHILOSOPHY. (3) Prerequisite: Philosophy 201, or junior standing, or consent of the instructor. A survey of European philosophic movements which had counterparts in American thought, leading to distinctively American Pragmatism, Realism, and Humanism. Readings from contemporary American philosophers.

445. PHILOSOPHY OF MIND. (3) Prerequisite: Philosophy 201. A study of the conceptual issues in the mind-body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination, and emotion.

491. SEMINAR. (2) Prerequisite: Consent of the department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results.

492. SEMINAR. (2) Prerequisite: Consent of the department. A continuation of Philosophy 491.

PHYSICS

Associate Professor Pollak, *Chairman;* Assistant Professors Mayes, Oberhofer, Vermillion.

A major in physics leading to the B.A. degree consists of 32 semester hours of physics among which must be included

Physics 221, 231, 241, 251, 252, 321, 351, 352, 360, and 361. The remaining 12 hours must be approved by the department.

A first-year sequence of Physics 101 and 102 or Chemistry 101 and 102 is recommended. A student is required to take Mathematics 103, 104, 141, 142, and 241. It is recommended that an entering freshman enroll in the combined course Mathematics 103-104.

Related work consists of 18 semester hours approved by the department. A student choosing to do related work in mathematics may count the required mathematics courses as partial fulfillment of the related work.

101. INTRODUCTORY PHYSICS I. (4) Prerequisite or corequisite: Mathematics 101 or Mathematics 103. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g., relativity, quantum mechanics, elementary particles) in order to illustrate the logical structure of modern science. Three lecture hours and one three hour laboratory each week.

102. INTRODUCTORY PHYSICS II. (4) Prerequisite: Physics 101. A continuation of Physics 101. Three lecture hours and one three hour laboratory each week.

221. PARTICLE DYNAMICS (3) Corequisite: Mathematics 142. Kinematics and dynamics of particles. The gravitational interaction with an introduction to the associated vector and scalar fields.

231. ELECTROMAGNETIC THEORY I. (3) Prerequisite: Physics 221. Corequisite: Mathematics 241. The first course of a three-semester sequence treating free-space and matter electrodynamics, potential theory, electromagnetic energy relations, Maxwell's equations, electromagnetic waves, and other selected topics in electromagnetic theory.

241. WAVES AND OSCILLATIONS. (3) Prerequisite: Physics 231. General wave phenomena. Interference. Diffraction. Polarization. Applications from geometrical and physical optics, coupled masses, vibrating string.

251. EXPERIMENTAL PHYSICS I. (1) Corequisite: Physics 221. The first course of a six-semester laboratory sequence developing toward open-ended experiments designed to illustrate physical principles, to develop experimental technique, and to encourage individual investigation by the student. One three hour laboratory each week.

252. EXPERIMENTAL PHYSICS II. (1) Prerequisite: Physics 251, Mathematics 241, or consent of the Physics Department. A continuation of Physics 251. One three hour laboratory each week.

321. CLASSICAL MECHANICS I. (3) Prerequisite: Physics 221. The first course of a two-semester sequence treating particle dynamics (Newtonian and Relativistic), small oscillations, rigid bodies, Lagrange's equations, Hamilton's equations, Hamilton's principle, and other selected topics.

331. ELECTROMAGNETIC THEORY II. (3) Prerequisite: Physics 231. Continuation of Physics 231.

341. QUANTUM PHYSICS I. (3) Prerequisite: Physics 241. Empirical necessity for quantum physics. Postulates of quantum physics. Analytical study of quantum physics of atoms, molecules, and solids.

345. STATISTICAL PHYSICS. (3) Prerequisite: Physics 321 or consent of the Physics Department. Introduction to the microscopic foundations for macroscopic systems. Kinetic theory and introductory statistical mechanics.

350. TOPICS IN PHYSICS. (One to three semester hours credit. May be repeated with approval of the Physics Department.) Prerequisite: consent of the Physics Department. Used to comply with requests for special topics which are introductory in nature.

351. EXPERIMENTAL PHYSICS III. (2) Prerequisite: Physics 252. Continuation of Physics 252. Six hours of laboratory each week.

352. EXPERIMENTAL PHYSICS IV. (2) Prerequisite: Physics 351. Continuation of Physics 351. Six hours of laboratory each week.

360. SEMINAR I. (1) Prerequisite: Physics 231. The first course in a two-semester sequence which is intended to introduce the undergraduate to specific topics (e.g., recent developments in physics research, historical review of specific areas of physics, etc.) which might otherwise be omitted from the curriculum. At times students will be expected to lead the discussion. In most cases a term paper on a subject agreed upon by the student and instructor will be required.

361. SEMINAR II. (1) Prerequisite: Physics 360. Continuation of Physics 360.

421. CLASSICAL MECHANICS II. (3) Prerequisite: Physics 321. Continuation of Physics 321.

431. ELECTROMAGNETIC THEORY III. (3) Prerequisite: Physics 331 or consent of the Physics Department. Continuation of Physics 331.

441. QUANTUM PHYSICS II. (3) Prerequisite: Physics 341. Continuation of Physics 341 with selected applications from atomic, molecular, and nuclear physics.

450. SELECTED TOPICS IN PHYSICS. (One to three semester hours credit. May be repeated with approval of the Physics Department.) Prerequisite: Consent of Physics Department. Used to comply with requests for more advanced special topics.

451. EXPERIMENTAL PHYSICS V. (2) Prerequisite: Physics 352. Continuation of Physics 352. Six hours of laboratory each week.

452. EXPERIMENTAL PHYSICS VI. (2) Prerequisite: Physics 451. Continuation of Physics 451. Six hours of laboratory each week.

POLITICAL SCIENCE

Professor Rieke, *Chairman;* Associate Professor Starner; Assistant Professors Brenner, Jamgotch; Instructor Biglow; Lecturer Minter

A major in Political Science for the B.A. degree consists of the following: (1) 27 semester hours of political science, including Political Science 201, 202, and 490, (2) 18 semester hours of related work in social science, philosophy, mathematics, or other fields with the written consent of the department.

Junior standing is the only prerequisite for 300 and 400 level courses in political science except for Political Science 490 and 495.

The offerings including introductory courses are divided into five major areas as follows:

1. American Politics: Political Science 201, 302, 303, 304, 311, 312, 320, 325
2. Comparative Politics: Political Science 202, 330, 336, 340, 345, 348, 355
3. International Relations: Political Science 370, 375, 380, 385, 390
4. Political Thought: Political Science 400, 401, 410
5. Political Science as a Discipline: Political Science 450, 490 495

201. INTRODUCTION TO AMERICAN POLITICS. (3) Role of the President, Congress, Supreme Court and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis upon political culture, the electoral process, interest groups, political communication, and the international commitments of the United States.

202. INTRODUCTION TO COMPARATIVE POLITICS AND GOVERNMENT. (3) Political institutions in the contemporary world. An introduction to the concepts of government, the phenomena of conflict, power, order, and authority implicit in the term "government." as well as the various political systems and structures which men have established.

AMERICAN POLITICS

302. POLITICS, POLITICAL PARTIES, AND PRESSURE GROUPS. (3) Analysis of the structure, role, and techniques of political parties in the United States. Also the evolution, origin, strategy, and tactics of interest groups in the American political system.

303. VOTING BEHAVIOR AND PUBLIC OPINION. (3) The nature of public opinion and propaganda in modern society. Analysis of the significant findings concerning the social, psychological and political determinants of voting. The relationship between public opinion and the making of public policy.

304. THE PRESIDENT AND CONGRESS. (3) The role of the President and Congress in the formation of policy in the American political system.

311. CONSTITUTIONAL LAW: STRUCTURE OF GOVERNMENT. (3) An analysis of Supreme Court decisions relating to judicial, congressional and presidential policymaking and the relationships between the federal and state governments. (Not open to students who have previously taken Political Science 310.)

312. CONSTITUTIONAL LAW: CIVIL RIGHTS AND LIBERTIES. (3) An analysis of Supreme Court decisions relating to civil rights and liberties. (Not open to students who have previously taken Political Science 310.)

320. PUBLIC ADMINISTRATION. (3) An institutional and behavioral analysis of the administrative process. Includes: the rise of the administrative state, its impact on administrative theory and practice, and the nature of the new public bureaucracy; the tasks of the administrator; the political

environment of administration; organization, personnel, and finance; the regulatory function and administrative law; and administrative responsibility.

325. STATE AND URBAN POLITICS. (3) The states in the federal system: their history, constitutions, governmental structure, and relations with other units of government; the problems of urban areas. Politics and policy formation at each level of government.

COMPARATIVE POLITICS AND AREA STUDIES

330. CONSTITUTIONAL DEMOCRACY AND AUTHORITARIANISM. (3) Comparative study of the political institutions, processes, and problems of selected democracies and dictatorships, including fascist and totalitarian variants. The conditions that facilitate the origin and development of these forms.

336. THE NATURE OF POLITICAL CHANGE. (3) Comparative study of the nature and causes of political change and stability with reference to the experiences of the United States, some European nations, and selected developing nations. Problems of modernization, impact of revolutions, processes of reform, nation-building, and the influence of social and economic dynamics upon political order.

340. POLITICAL SYSTEMS OF WESTERN EUROPE. (3) Comparative analysis of selected West European governments including Great Britain, France, Germany, and Italy.

345. GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3) The origins of Bolshevism and the substance and role of Marxist-Leninist ideology. The structure and functions of the Community Party of the Soviet Union (CPSU). The principles of Soviet politics and the instruments of rule. The Soviet political system in transition and its relationship to world communism.

348. GOVERNMENT AND POLITICS OF LATIN AMERICA. (3) Constitutionalism, governmental structures, and political processes in Latin America. Problems of development, modernization, and change. Inter-American relations and Latin American world affairs.

355. GOVERNMENT AND POLITICS OF EAST ASIA. (3) The structure and evolution of political institutions in selected East Asian states. Emphasis upon such topics as nationalism, political modernization, ideology, socioeconomic influences, and the role of Asian nations in world politics.

INTERNATIONAL RELATIONS

370. AN INTRODUCTION TO INTERNATIONAL POLITICS AND INSTITUTIONS. (3) Analysis of politics among nations: material and psychological sources of national power, the role of law, force, and diplomacy in world politics, problems of peace and disarmament, and international organizations.

375. AMERICAN FOREIGN POLICY. (3) The problem of defining the objectives of foreign policy in the United States and of selecting the means for achieving them; past, present, and suggested American strategies in world politics. Comparisons will be made with the processes and issues in other nations.

380. SOVIET FOREIGN POLICY. (3) The concepts, content, and evolution of Soviet foreign relations, with emphasis upon change and continuity in Russian and Soviet policies. Contemporary problems of Soviet diplomacy with other world powers and with the Marxist-Leninist nations of the Communist international system.

385. POLITICAL FOUNDATIONS OF INTERNATIONAL ORDER. (3) The structure, processes, and problems of general and regional international organizations, and the origins and contemporary role of international law.

390. PROBLEMS OF DEFENSE AND NATIONAL SECURITY POLICY. (3) Investigates major concepts of war and the problems of arms control, escalation, and the proliferation of nuclear weapons. Examines trends and conditions of international conflict, technological change, and domestic political environments as they relate to defense and national security.

POLITICAL THOUGHT

400. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from Plato to the seventeenth century.

401. HISTORY OF POLITICAL THOUGHT. (3) Major concepts and systems of political thought from the seventeenth century to the present.

410. AMERICAN POLITICAL THOUGHT. (3) An analysis of the ideas underlying government and politics in the United States.

POLITICAL SCIENCE AS A DISCIPLINE

450. SELECTED TOPICS IN POLITICAL SCIENCE. (3) An intensive study of a topic in political science. Topics chosen

may vary from semester to semester. A student may take more than one course under this number.

490. SENIOR SEMINAR: THE SCOPE OF MODERN POLITICAL SCIENCE. (3) Prerequisites: Senior standing and 12 hours of Political Science. A course in the "how" and "why" of the discipline rather than the "what." The staff in Political Science will lead the seminar in the consideration of: (1) major works in Political Science (books and scholarly articles), (2) some more important theories currently guiding research in the discipline, and (3) the present posture or direction of the discipline.

495. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Senior standing and Mathematics 222. (This course is also listed as Sociology 410.) Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data. Recommended for students considering graduate work in the social sciences.

PSYCHOLOGY

Professor Diamant, *Chairman;* Associate Professors Schultz, Sohn; Assistant Professor Simono; Instructors Greeson, Bailey (Part-time)

A major in psychology leading to the B.A. degree consists of 29 semester hours of psychology including General Psychology (201), Experimental Psychology (341 or 342), History and Systems of Psychology (361) and Senior Seminar (491 or 492). Courses strongly recommended are Psychology of Personality (305), Physiological Psychology (351), and Tests and Measurements (450).

Other course requirements for majors are Math 221 and 222 (Introduction to Probability and Statistics I and II), two courses from the subject areas of biology, chemistry and physics, and six hours of social science exclusive of psychology.

Students considering graduate work are strongly urged to complete the 202 course in French, German or Russian.

Related work consists of 18 semester hours which are to be arranged conjointly by the student and his advisor. Students in the elementary education program may use the education sequence as related work.

201. GENERAL PSYCHOLOGY. (4) Survey of general psychology as a behavioral science. Three lecture hours and one laboratory period of two hours a week.

202. EDUCATIONAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The psychology of learning; problems related to the instructional processes. Case study required.

203. PSYCHOLOGY OF ADJUSTMENT. (3) Prerequisite: Psychology 201. The study of the process of adjustment. Primary consideration given to motivation, frustration and conflict, adjustment mechanisms, and psychotherapy.

301. CHILD PSYCHOLOGY. (3) Prerequisite: Psychology 201. The instincts, emotions, and general tendencies of children up to the age of twelve. Remedial measures suggested in dealing with early child tendencies which might lead to serious school and personality difficulties. Special study of at least one child required for each student.

302. ADOLESCENT PSYCHOLOGY. (3) Prerequisite: Psychology 201. Developmental and psychological characteristics of adolescence. Research methods and familiarity in case study emphasized. School and personality problems studied.

303. SOCIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The social behavior of man. Man's behavior in relation to other individuals, groups, and products of culture, both material and nonmaterial. Group dynamics, leadership, the nature of prejudice, the effects of mass communication, public opinion are some of the topics treated.

305. PSYCHOLOGY OF PERSONALITY. (3) Prerequisite: Psychology 201. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, and perceptual viewpoints in the light of contemporary research.

307. ABNORMAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

308. LEARNING THEORY. (3) Prerequisite: Psychology 201. A survey of learning theories including the major associationist, cognitive, and mathematical positions. A comparative approach is taken whenever possible.

341. EXPERIMENTAL PSYCHOLOGY: LEARNING AND MOTIVATION. (4) Prerequisites: Psychology 201 and Math 222. History of the experimental approach to motivation and learning theory, current issues and controversy. Emphasis on laboratory problems. Three lecture hours and one laboratory period of two hours a week.

342. EXPERIMENTAL PSYCHOLOGY: SENSATION AND PERCEPTION. (4) Prerequisites: Psychology 201 and Math

222. Survey of literature on sensation and perception. Introduction to problems and methods in research in sensation and perception. Three lecture hours and one laboratory period of two hours a week.

351. PHYSIOLOGICAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. The relationship of the physiological systems to integrated behavior. Emphasis on neural aspects of behavior and current studies in reaction to drug and other stimuli.

361. HISTORY AND SYSTEMS OF PSYCHOLOGY. (3) Prerequisite: Psychology 201. Influential psychological systems and their historical antecedents. Emphasis on Gestalt, Psychoanalytic and behaviorist theory. Evaluation of current existential influence.

371. INDUSTRIAL PSYCHOLOGY. (3) Prerequisite: Psychology 201. Psychological theories as applied to industry and business. Studies in human engineering and personnel problems.

403. ADVANCED SOCIAL PSYCHOLOGY (3) Prerequisite: Psychology 303 and permission of the instructor. An intensive study at the advanced level of topics of current research and theoretical interest in social psychology.

421. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. (3) Prerequisites: Psychology 201 and 301. Assessing the exceptional child. Emphasis on current research in several diagnostic categories.

450. TESTS AND MEASUREMENTS. (3) Prerequisite: Psychology 201. A survey of psychological and educational measurements in current use. Emphasis will be placed on structure, administration, and application of group tests. Individual tests such as Stanford Binet, WISC, and WAIS will be reviewed.

490. INDIVIDUAL RESEARCH (1-4) Prerequisite: Permission of the department. A course allowing the senior psychology major an opportunity to initiate, design, and conduct an original research problem in his area of interest. May be repeated for credit.

491. SEMINAR. (3) Admission by consent of department. Intensive reading and discussion in selected areas. Issues of current importance; social, scientific, and philosophical implications.

492. SEMINAR. (3) Admission by consent of department. A continuation of 491.

RELIGION

Associate Professor Witherspoon, *Chairman;* Assistant Professor Corkey; Jewish Chautauqua Society Lecturer Gerber

201. SURVEY OF THE OLD TESTAMENT. (3) An introduction to the literary and historical values of the Old Testament literature. Emphasis upon the background, purpose, and content of the writings in English translations.

202. SURVEY OF THE NEW TESTAMENT. (3) New Testament literature in its historic and contemporary background. Emphasis upon the content and purpose of the text in English translations.

203. COMPARATIVE RELIGIONS. (3) A survey of man's religious consciousness from the earliest intimations of its awakening to the development of the world's living religions today, utilizing modern research among contemporary primitive cultures and translations of the primary sources of the world's great scriptures.

301. THE LIFE AND TEACHINGS OF JESUS. (3) Prerequisite: Religion 202. A study of the Gospels for an understanding of the life of Jesus and the religion he taught.

302. THE WRITINGS OF PAUL. (3) Prerequisite: Religion 202. A detailed analysis of the Pauline corpus. Particular reference is made to the occasion, purpose, and the theological and ethical significance of each letter.

303. THE HEBREW PROPHETS. (3) Prerequisite: Religion 201. The historical development of the prophetic movement from its origins to its culmination in the classical prophets of the eighth and sixth centuries B.C. Emphasis will be placed on the contributions of the prophets to their own day and their significance for religious thought today.

304. THE PSALMS AND WISDOM LITERATURE OF ISRAEL. (3) Prerequisite: Religion 201. A study of the origin and content of the Psalms and a study of the place of the Wisdom Literature in the development of Hebrew Thought.

350. TOPICS IN RELIGION. (3) May be repeated for credit. Prerequisites: consent of the department. Topics to be chosen from the areas of religion specifically relating to Biblical studies.

401. RELIGION AND MODERN THOUGHT. (3) An introduction to the analysis of language in modern thought and its relation to religion and a study of some of the challenges to religion in modern thought such as those of pragmatism and positivism and some of the responses to these challenges.

402. CONTEMPORARY RELIGIOUS THINKERS. (3) A study of some of the important religious thinkers, such as, Barth, Buber, Cox, Fletcher, Herschel, Niebuhr, and Tillich.

403. HISTORY OF JEWISH RELIGIOUS THOUGHT FROM BIBLICAL TIMES THROUGH THE MIDDLE AGES. (3) A systematic survey of the development of Jewish religious thought from Biblical times through the Middle Ages. Readings from the Old Testament, Apocrypha, Talmud and others.

404. HISTORY OF JEWISH RELIGIOUS THOUGHT FROM THE MIDDLE AGES TO THE PRESENT. (3) A systematic survey of the development of Jewish religious thought from the Middle Ages to the present. Readings from Maimonides and others.

405. THEOLOGY AND CONTEMPORARY LITERATURE. (3) Prerequisite: Open to seniors only with the consent of the department. A discussion of the theological issues raised by contemporary writers—both Christian and non-Christian. Consideration will be given to the writings of such authors as Camus, Eliot, Greene, Miller, Salinger, Steinbeck, and others.

406. RELIGION IN AMERICAN LIFE. (3) Prerequisite: Junior standing and the consent of the instructor. An inquiry into the role religion has played in the development of American life with particular emphasis on the late nineteenth and twentieth centuries.

407. RELIGION AND CONTEMPORARY SOCIETY. (3) Prerequisite: consent of the department. A study of religious norms and institutions in relation to contemporary social issues, such as, civil rights, communism, sex and war.

450. TOPICS IN RELIGION. (3) May be repeated for credit. Prerequisite: consent of the department. Topics are to be chosen from the areas of religion specifically relating to contemporary issues in theology and religion and religious thought of non-Judeo-Christian religions.

491. SEMINAR. (2) Prerequisite: consent of the department. Individual investigation and appropriate exposition of the results.

492. SEMINAR. (2) Prerequisite: consent of the department. A continuation of Religion 491.

SOCIOLOGY

Visiting Professor Pohlman; Instructor Harris, *Acting Chairman;* Assistant Professor Goodnight; Lecturer Bradshaw; Instructor Canals

A major in sociology leading to the B.A. degree consists of 27 semester hours of sociology, including Soc. 201 (General Sociology), Soc. 401 (Sociological Theory), Soc. 410 (Research Methods in Social Science), and Soc. 491 (Seminar for Majors in Sociology). Psychology 303 may be substituted for a Sociology course among the 27 required semester hours in Sociology for majors only. Math. 221, 222 (Introduction to Probability and Statistics I, II) are required of majors in sociology. Related work consists of 21 semester hours in any two fields based on the approval of the department. A student may elect as related work the necessary requirements for a teaching certificate at the secondary level.

201. GENERAL SOCIOLOGY. (3) Survey of the field of sociology to cover such topics as: social norms and values, status and role, social stratification, socialization, crowds and publics, formal and informal groups, urban communities, population, social institutions.

203. GENERAL ANTHROPOLOGY. (3) Survey of the field of anthropology: physical anthropology, prehistoric archeology, ethnology, culture theory with special emphasis upon cultural anthropology.

270. INDUSTRIAL SOCIOLOGY (3) Prerequisite: consent of department. The application of sociological concepts and theories to the analysis of social relationships in business and industry. A study of relationships of industry to the community and society.

302. SOCIAL PROBLEMS. (3) Prerequisite: Sociology 201. Sociological analysis of crime and delinquency, alcoholism, drug addiction, mental disorders, race relations, and problems of population.

303. SOCIOLOGY OF THE FAMILY. (3) Prerequisite: Sociology 201. Analysis of the structure and functioning of the American family and of such related institutional patterns as dating, courtship, marriage, and divorce.

310. AMERICAN MINORITY GROUPS. (3) Prerequisite: Sociology 201. Sociological analysis of the relations between minority and dominant groups in America, with special attention paid to such American minorities as immigrant groups, Mexicans, Puerto Ricans, Orientals, Catholics, Jews, Indians, and Negroes.

318. SOCIAL CONTROL. (3) Prerequisite: Sociology 201 or consent of department. The relation of social norms to conforming and deviant behavior with emphasis on the role of the small "status group" in behavioral control. Special attention is

given to a study of public opinion and propaganda as forces in social control.

320. URBAN SOCIOLOGY. (3) Prerequisite: Sociology 201. Origin and development of cities; ecological and social structure of city and region; nature and functioning of urban institutions.

323. COMMUNITY ORGANIZATION OF SOCIAL SERVICES. (3) Analysis of the organization of agencies and services for welfare, health, recreation, and other social needs in American communities.

401. SOCIOLOGICAL THEORY. (3) Prerequisite: Sociology 201. Background and contemporary expression of systematic theories of social organization, social differentiation, social change, and other phenomena.

402. CONTEMPORARY SOCIAL INSTITUTIONS. (3) Prerequisite: Sociology 201 or consent of department. Emphasis on trends and changes in contemporary society. Particular attention is directed toward social and cultural change and the impact of technology, etc., upon major social institutions.

410. RESEARCH METHODS IN SOCIAL SCIENCE. (3) Prerequisites: Sociology 201, Math 222. Theory and practice of research in social science: formulation of the problem, research design, data collection, analysis and interpretation of data.

491. SEMINAR FOR MAJORS IN SOCIOLOGY. (3) Prerequisite: Permission of department. Independent study, small group discussion and critique.

SPEECH

(See Fine Arts)

THEATRE

(See Fine Arts)

VII. BENEFACTIONS

PROFESSORSHIPS

The **Charles H. Stone Fund** was given by Mrs. Stone in memory of her husband, a pioneer in the chemical and dyestuff industry in the South. The grant is dedicated to perpetuating the memory of Mr. Stone and assuring the high quality of chemistry instruction at the University of North Carolina at Charlotte. The net income will be used for the payment of a salary supplement to a distinguished member or members of the chemistry faculty, who will be designated as "Charles H. Stone Professors of Chemistry." Before World War I Mr. Stone was employed by a German chemical company, and later he formed his own company in Charlotte and operated it until 1937 when it was purchased by American Cyanamid Company. Mr. Stone remained active with the company until his retirement in 1947. He died October 20, 1963.

The **Robert Lee Bailey Professorship in History** was established in December, 1965 by Mr. and Mrs. Sanford V. Davenport to honor and reward excellence in teaching by a gift in memory of her brother, Lieutenant Robert Lee Bailey of the 10th Armored Division of the U. S. Army, who was killed in Germany on March 22, 1945, near the end of the conflict in Europe. Born on April 21, 1914, in Concord, he attended Davidson College, and before the war was associated with Broyhill Furniture Company.

The **Rush S. Dickson Professorships in Finance** are being established in memory of the late Rush S. Dickson of Charlotte. The professorships are made possible through the generous gifts and pledges, totaling $100,000, by the Dickson Foundation of Mount Holly and the Rush S. Dickson Family Foundation of Charlotte. Mr. Dickson established both foundations. The net income from the gifts will be used for the payment of a salary supplement or supplements to a distinguished member or members of the Business Administration faculty in the field of finance.

The American Credit Foundation of North Carolina, Inc., is making possible the establishment of the **American Credit Corporation Professorships in Business Administration.** The Foundation approved a statement of intent in January, 1967 to contribute $100,000 to be paid over a period of ten years and to be used for the presentation of a salary supplement or supplements to a distinguished member or members of the Business Administration faculty, who will be known as "American Credit Corporation Professors of Business Administration."

NCNB AWARDS

The generosity of the North Carolina National Bank has made possible the NCNB Awards established for the purpose

of recognizing and honoring members of the faculty for distinguished service. The NCNB Awards initially will be used to reward excellence in teaching by members of the faculty. Eventually they may also honor faculty members for distinguished research and scholarly writing or devoted and sacrificial service to the University and to mankind.

THE FOUNDATION OF THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The Foundation of the University of North Carolina at Charlotte was founded in 1960 and has had from its inception the goal of undergirding the University and assisting it in the quest for excellence. To accomplish its goals, the Foundation invites private sources to contribute so that needs unmet, or inadequately provided for through state funds, may be met. The Celanese Corporation of America and the Celanese Fibers Company presented a gift in July, 1963, of a manufacturing plant at Burlington, North Carolina, valued at $1,150,000. The income derived from the rental of this plant is used to supplement the salaries of members of the faculty who teach chemistry, engineering, mathematics, physics and related subjects.

The Foundation of the University of North Carolina at Charlotte has established a program called, "Patrons of Excellence," with the primary initial objective of supplementing the salaries of distinguished faculty members. Under the program Patrons pledge a minimum of $1,000 a year for a period of 10 years. The first goal of the program, to enlist 100 Founding Patrons of Excellence, has been reached. Now the Foundation is seeking 200 additional Patrons.

VIII. DIRECTORY

THE UNIVERSITY OF NORTH CAROLINA

(Four Component Institutions)

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ALEXANDER HURLBUTT SHEPARD, JR., A.B., M.A., *Assistant Vice President and Treasurer*

J. SIBLEY DORTON, JR., B.S., *Assistant Vice President and Escheat Officer*

RUDOLPH PATE, B.S., *Assistant to the President*

By the act of the General Assembly of 1931 the University of North Carolina at Chapel Hill, the North Carolina College for Women at Greensboro (renamed the Woman's College of the University of North Carolina), and the North Carolina State College of Agriculture and Engineering at Raleigh were consolidated into The University of North Carolina.

By the act of the General Assembly of 1963 effective July 1, 1963, The University of North Carolina comprised: The University of North Carolina at Chapel Hill, The University of North Carolina at Greensboro and North Carolina State of The University of North Carolina at Raleigh.

By the act of the General Assembly of 1965 effective July 1, 1965, The University of North Carolina comprises: The University of North Carolina at Chapel Hill, The University of North Carolina at Greensboro, The University of North Carolina at Charlotte, and North Carolina State University at Raleigh.

Each institution has its own faculty and student body, and each is headed by a chancellor as its chief administrative officer. Unified general policy and appropriate allocation of function are effected by a single Board of Trustees and by the President with other administrative officers of the consolidated University. Administrative offices are located in Chapel Hill.

Members of the Board of Trustees are elected by the Legislature, and the Governor of North Carolina is chairman ex officio. A list of members of the Board of Trustees follows.

The chancellors of the component institutions are responsible to the President as the principal executive officer of The University of North Carolina.

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THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

ADMINISTRATIVE OFFICERS AND STAFF

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Charles Edward Brock, B.A., M.Ed., Assistant Director of Registration

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Howard Noel Winniman, A.B., M.Ed., Assistant Director of the University Union

Desaree Wilson Stroud, R.N., Nurse

Mildred Elizabeth English, B.S., M.A., Placement Officer

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Herbert Hechenbleikner, A.B., M.A., Ph.D., Director of Gardens and Grounds and Professor of Biology

William Daniel White, Jr., B.S., Plant Engineer

William Frank Hutchison, Buildings Superintendent

Loren Haus, Food Service Director

Hugh Montgomery Jolley, III, A.B., Bookstore Manager

Jane Starr, B.S., C.P.A., Accountant

Lois Liske Liles, Personnel Officer

UNIVERSITY PLANNING STUDIES

Paul Ausborn Miller, B.S., M.A., Ph.D., Distinguished Professor of Education and Director of University Planning Studies

INSTITUTIONAL RESEARCH

Larry George Owen, A.B., M.P.A., Director of Institutional Research

INFORMATION SERVICES

James Kenneth Sanford, A.B., M.A., Director of Information

THE FOUNDATION OF THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

Bascom Weaver Barnard, A.B., A.M., Executive Director

FACULTY

William Clyde Friday, President
B.S., North Carolina State College; L.L.B., L.L.D., University of North Carolina at Chapel Hill

Dean Wallace Colvard, Chancellor and Professor
B.S., Berea College; M.A., University of Missouri; Ph.D., Purdue University

William Hugh McEniry, Vice Chancellor for Academic Affairs and Professor of English
A.B., Birmingham-Southern College; M.A., Ph.D., Vanderbilt University

Bonnie Ethel Cone, Vice Chancellor for Student Affairs and Community Relations and Professor of Mathematics
B.S., Coker College; A.M., Duke University

A. Rashad M. Abdel-Khalik, Instructor in Economics and Business Administration
B.Com., Cairo University; M.B.A., M.A., Indiana University

George R. Abernathy, Jr., Professor of History
B.S., Sam Houston State College; M.A., Ph.D., University of Texas

Julius Alker, Assistant Professor of Geology
B.A., State University of New York at Buffalo; A.M., Harvard University; Ph.D., University of Nebraska

Ronald Eric Anderson, Instructor in Art
B.F.A., Miami University; M.F.A., Pratt Institute

Michael Chisman Bailey, Instructor in Psychology (Part-time)
B.A., M.A., East Carolina University

Jeter Olive Barker, Jr., Instructor in Engineering (Part-time)
B.S.E.E., North Carolina State College

Newton Hall Barnette, Chairman, Division of Engineering, and Professor of Electrical Engineering
B.S., Louisiana Polytechnic Institute; M.S., Virginia Polytechnic Institute; Ph.D., Cornell University

Parannara Basavappa, Visiting Professor of Mathematics
B.Sc., University of Mysore; M.Sc., Banares Hindu University; Ph.D., University of Saskatchewan

Percy Levy Bernstein, Instructor in Mathematics (Part-time)
B.E., Tulane University; M.A.T., Duke University

Frank William Biglow, Instructor in Political Science
A.B., University of Florida; M.A., University of California at Berkeley

Ruth Blackwelder, Associate Professor of History, Emeritus
A.B., Wittenberg College; M.A., University of North Carolina at Chapel Hill

LeGette Blythe, Writer-In-Residence (Part-time)
A.B., University of North Carolina at Chapel Hill; Litt. D., Davidson College

Ronald Earl Booth, Jr., Associate Professor of Music
B.Mus., University of Texas, M.Mus., Indiana University

Larry Charles Bostian, Instructor in Health and Physical Education
B.S., North Carolina State College; M.Ed., University of North Carolina at Chapel Hill

Roselyn Langley Boyette, Instructor in Music
A.B., University of North Carolina at Chapel Hill; M.Mus., Converse College

Joseph Floyd Boykin, Acting Librarian and Assistant Professor
B.S., M.S., Florida State University

Doris Anne Bradley, Technical Services Librarian and Assistant Professor
A.B., Wilson College; B.S. in L.S., University of North Carolina at Chapel Hill

Barbara Robinson Bradshaw, Lecturer in Sociology
B.A., University of Denver; M.A., Northwestern University; Ph.D., University of North Carolina at Chapel Hill

Saul Brenner, Assistant Professor of Political Science
B.A., Brooklyn College; L.L.B., Columbia University School of Law; M.A., Brooklyn College

Edith Perryman Brocker, Chairman, Division of Nursing, and Professor of Nursing
R.N., University of Pennsylvania; B.S.P.H.N., University of North Carolina at Chapel Hill; A.M., University of Chicago

Amy Marie Brooks, Instructor in Spanish
A.B., The Woman's College of the University of North Carolina; M.A., University of Georgia

Constance Nock Brown, Instructor in Spanish
B.A., Texas Woman's University

James Stephen Browning, Instructor in Engineering (Part-time)
B.S.C.E., M.S., North Carolina State University at Raleigh

Kermit Ray Burnside, Instructor in Biology
B.S., M.S., Northeast Louisiana State College

Sherman LeRoy Burson, Jr., Chairman, Department of Chemistry, and Charles H. Stone Professor of Chemistry
B.S., Ph.D., University of Pittsburgh

Charles Kettron Bush, III, Instructor in English
B.A., Georgetown College; M.A., University of North Carolina at Chapel Hill

Newell Richard Bush, Associate Professor of French
A.B., Miami University; M.A., Ph.D., Columbia University

Thomas William Byarlay, Instructor in Economics and Business Administration
B.B.A., M.B.A., Memphis State University

Robert Dalton Byerly, Jr., Instructor in Philosophy
B.A., University of North Carolina at Chapel Hill; A.M., Columbia University

Elinor Brooks Caddell, Assistant Professor of Nursing
B.S.N.E., M.S.N., Duke University

Nelson Walter Canals, Instructor in Sociology
B.A., University of Puerto Rico

James William Clay, Instructor in Geography
B.S., M.S., Marshall University

Christopher Dixon Cook, Instructor in English
B.A., North Carolina State University at Raleigh; M.A., University of Virginia

William Barnet Harold Corkey, Assistant Professor of Philosophy and Religion
B.A., Queen's University, Belfast, North Ireland; M.A., University of North Carolina at Chapel Hill

Susan Smythe Crane, Assistant Technical Services Librarian and Instructor
B.A., Pfeiffer College; M.S.L.S., University of North Carolina at Chapel Hill

James Carroll Crosthwaite, Assistant Professor of Chemistry
B.S., Anderson College; M.A., DePauw University; Ph.D., Duke University

Lloyd Dale Davis, Assistant Professor of Mathematics
A.B., Ohio Northern University; M.S., University of Miami

Marcus Henry Deal, Instructor in History
A.B., High Point College; M.A., Wake Forest College

Frank Patrick DeFelice, Assistant Professor of Economics and Business Administration[1]
B.A., Michigan State University; M.B.A., Ph.D., University of North Carolina at Chapel Hill

Mary Rebecca Denny, Professor of English, Emeritus
B.A., Salem College; M.A., Duke University

Louis Diamant, Chairman, Department of Psychology, and Professor of Psychology
B.S., M.A., New York University; Ph.D., Yeshiva University

Thomas David DuBois, Assistant Professor of Chemistry
B.A., McMurry College; M.S., Ph.D., Ohio State University

Nancy Claire Edwards, Instructor in Biology
B.A., Agnes Scott College; M.A., University of North Carolina at Chapel Hill

Seth Howard Ellis, Associate Professor of English
A.B., University of Delaware; A.M., University of Missouri; Ph.D., University of Southern California

Mary Rodriguez Embry, Associate Professor of Mathematics
B.S., Southwestern at Memphis; M.A., University of Missouri; Ph.D., University of North Carolina at Chapel Hill

Jack Burnie Evett, Assistant Professor of Engineering
B.S., M.S., University of South Carolina; Ph.D., Texas A & M University

Gwendolyn Flory Ferguson, Instructor in Speech (Part-time)
B.A., The College of Wooster; M.A., Northwestern University

Stephen Michael Fishman, Assistant Professor of Philosophy
A.B., Columbia College; M.A., Ph.D., Columbia University

Paul Joseph Fleming, Instructor in Health and Physical Education
B.S., M.Ed., University of Cincinnati

Richard Vernon Fuller, Assistant Professor of Mathematics
B.S.E.E., M.A.M., North Carolina State College; Ph.D., Georgia Institute of Technology

Karl Michael Gabriel, Associate Professor of German
Ph.D., University of Vienna

Maud Florance Gatewood, Assistant Professor of Art
A.B., The Woman's College of the University of North Carolina; M.A.. Ohio State University

Hallie Leon Gatlin, III, Assistant Professor of English
B.A., Wake Forest College; M.A., Ph.D., University of Iowa

Israel Joshua Gerber, Jewish Chautauqua Society Lecturer in Religion
B.A., Yeshiva University; M.S., City College of New York; Ph.D., Boston University

John Duncan Gibbon, Lecturer in Engineering
B.Sc., Ph.D., University of Birmingham

Robert Harry Gibson, Assistant Professor of Chemistry
A.B., Erskine College; M.A., Ph.D., Columbia University

Barbara Ann Goodnight, Assistant Professor of Sociology
B.S., Texas Woman's University; M.A., Ph.D., Louisiana State University

[1] On leave, 1968-69.

Cloyd Smith Goodrum, Jr., Professor of Mathematics
B.A.E., Rensselaer Polytechnic Institute; M. A., University of North Carolina at Chapel Hill

Judith Greeson, Instructor in Psychology
B.S., University of Georgia; M.A., University of Alabama

Barry Britton Guthrie, Instructor in Economics and Business Administration (Part-time)
B.S., M.A., East Tennessee State University

Ben Hall Hackney, Jr., Acting Chairman, Department of Education, and Associate Professor of Education
A.B., Duke University; M.Ed., D.Ed., University of North Carolina at Chapel Hill

John O. P. Hall, Professor of History
B.S., University of New Hampshire; Ph.D., Columbia University

Patricia Ann Harris, Acting Chairman, Department of Sociology, and Instructor in Sociology
B.A., University of Southwestern Louisiana; M.A., Louisiana State University

Herbert Hechenbleikner, Professor of Biology
A.B., University of North Carolina at Chapel Hill; M.A., Ph.D., Harvard University

Harper Thomas Higgins, Jr., Assistant Professor of Economics and Business Administration
B.S., Presbyterian College; M.Ed., University of North Carolina at Chapel Hill

Philip Elwin Hildreth, Chairman, Division of Natural Science and Mathematics, Chairman, Department of Biology, and Distinguished Professor of Biology
A.B., Dartmouth College; M.A., Ph.D., University of California at Berkeley

Dolan Ray Hinson, Instructor in Economics and Business Administration
B.S., Pfeiffer College; M.B.A., New York University

Gene Richard Hogan, Assistant Professor of Biology
A.B., Hendrix College; M.S., American University of Beirut, Lebanon; Ph.D., University of Illinois

Edward Warren Hopper, Instructor in Spanish
B.A., North Texas State University; A.M., University of Missouri

Frances Bobbitt Hoyle, Asssociate Professor of Spanish
A.B., The Woman's College of the University of North Carolina; M.A., New York University

Nish Jamgotch, Jr., Assistant Professor of Political Science
B.A., M.A., University of Minnesota; Ph.D., The Claremont Graduate School

Michael Alan Kerwin, Instructor in English
B.A., Western Michigan University; M.A., University of Michigan

Rhyn Hyun Kim, Assistant Professor of Mechanical Engineering
B.S.M.E., Seoul National University; M.S.M.E., Ph.D., Michigan State University

Wanda Faye King, Instructor in Mathematics
B.S., East Carolina College; M.S., University of Notre Dame

James Richard Kuppers, Professor of Chemistry
B.S., University of Florida; M.S., Louisiana State University; Ph.D., University of Florida

Miriam Almaguer Leiva, Instructor in Mathematics
B.S., Guilford College; M.A., University of North Carolina at Chapel Hill

James Baxter Linder, Assistant Professor of Mathematics
B.S., M.A., University of North Carolina at Chapel Hill

Joyce Ann Lowder, Instructor in Nursing
B.S., Queens College; M.S., Emory University

Pierre Macy, Professor of French
Bachelier es lettres, University of Nancy; Licencie es lettres, University of Dijon; Agrege des lettres, Docteur es lettres, University of Paris

Eleanor Mallory Markham, Associate Professor of Mathematics
A.B., A.M., Duke University

Julian Dewey Mason, Jr., Associate Professor of English[1]
A.B., University of North Carolina at Chapel Hill; M.A., George Peabody College for Teachers; Ph.D., University of North Carolina at Chapel Hill.

William Stephan Mathis, Chairman, Division of Humanities, Chairman, Department of Fine Arts, and Professor of Music
B.Mus., Stetson University; M.Mus., University of Michigan; Ph.D., Florida State University

James Francis Matthews, Associate Professor of Biology
A.B., Atlantic Christian College; M.S., Cornell University; Ph.D., Emory University

Terrill Wayne Mayes, Assistant Professor of Physics
B.S., Western Kentucky University; M.A., Ph.D., Vanderbilt University

Joseph Darryl McCall, Jr., Associate Professor of English
A.B., M.A., Ph.D., University of Florida

Edward Fulton Menhinick, Assistant Professor of Biology
B.A., Emory University; M.S., Cornell University; Ph.D., University of Georgia

Paul Ausborn Miller, Distinguished Professor of Education, and Director of University Planning Studies
B.S., West Virginia University; M.A., Ph.D., Michigan State University

Roger Austin Mills, Instructor in Geography and Geology (Part-time)
B.S., Appalachian State University

Winfred Pleasants Minter, Lecturer in Political Science
B.S., Virginia Polytechnic Institnte; Ph.D., University of Chicago

Roy Clifton Moose, Associate Professor of English
B.A., University of North Carolina at Chapel Hill; B.A., M.A., Oxford University; Ph.D., University of North Carolina at Chapel Hill

Dan Lincoln Morrill, Assistant Professor of History
B.A., Wake Forest College; M.A., Ph.D., Emory University

Harvey Frank Murphy, Acting Chairman, Department of Health and Physical Education, and Assistant Professor of Health and Physical Education
B.S., Troy State College; M.A., Columbia University; Ph.D., University of Illinois

Mary Catherine Nesbitt, Assistant Professor of Education
B.S., M.A., Appalachian State Teachers College; Ed.D., University of Georgia

Anne Royall Newman, Instructor in English
B.A., University of South Carolina; M.A., University of Iowa

Catherine Nicholson, Associate Professor of Speech and Drama
B.A., Flora MacDonald College; M.A., University of North Carolina at Chapel Hill; M.A., Ph.D., Northwestern University

[1] On leave, 1968-69.

Kathryn Lowery Nix, Order Librarian and Instructor
B.A., Southern Illinois University; M.S., University of Illinois

David Eugene Nixon, Associate Professor of Mathematics
B.S., M.S., North Carolina State College; Ph.D., North Carolina State University at Raleigh

Walter Endre Norem, Assistant Professor of Mechanical Engineering
B.S., Case Institute of Technology; M.S., Ph.D., University of Tennessee

John Henry Norman, Professor of Chemistry
A.B., Erskine College; M.A., University of North Carolina at Chapel Hill

Beatrice Louise Nugent, Instructor in Speech
B.A., Northeast Louisiana State College; M.A., Louisiana State University

Edward Samuel Oberhofer, Assistant Professor of Physics
B.S., North Carolina State College; M.S., Ph.D., North Carolina State University at Raleigh

Douglas Milton Orr, Jr., Assistant Professor of Geography and Geology
B.A., Davidson College; M.B.A., Ph.D., University of North Carolina at Chapel Hill

Allan Van Palmer, Chairman, Division of Economics and Business Administration, and Professor of Economics and Business Administration
B.S., Iowa State University; M.B.A., Ph.D., University of North Carolina at Chapel Hill

Elizabeth Frix Patterson, Instructor in English
A.B., Stetson University; M.A., University of North Carolina at Chapel Hill

Gail Thomas Peacock, Instructor in Art (Part-time)
B.A., Vanderbilt University; M.A., Peabody College

Edna Lorraine Penninger, Reference Librarian and Instructor
B.A., Flora MacDonald College; M.A., University of Denver

Edward Spaulding Perzel, Assistant Professor of History
B.A., M.A., University of Cincinnati; Ph.D., Rutgers—The State University

Verne Roy Ploger, Assistant Professor of History
B.G.E., M.A., University of Omaha

Edward Williams Pohlman, Visiting Professor of Sociology
B.A., Andrews University; M.A., Ph.D., Ohio State University

Victor Louis Pollak, Chairman, Department of Physics, and Associate Professor of Physics
B.Sc., Case Institute of Technology; Ph.D., Washington University

Charles Augustus Reavis, Assistant Professor of Education
A.B., M.Ed., University of North Carolina at Chapel Hill; Ed.D., Duke University

Raymond Guy Richard, Instructor in French
B.A., Université Saint Louis; M.A., Université Laval

Robert William Rieke, Chairman, Department of History and Political Science, and Professor of History
B.A., Carleton College; M.A., Ph.D., University of Wisconsin

John Brawner Robbins, Assistant Professor of History
A.B., Hampden-Sydney College; Ph.D., Rice University

Edwin Lee Rogers, Assistant Professor of Economics and Business Administration
A.B., Lenoir Rhyne College; Ph.D., University of North Carolina at Chapel Hill

Walter John Roth, Instructor in Mathematics
B.S., University of Michigan; M.S., University of New Mexico

William D. Roxlo, Instructor in Engineering (Part-time)
B.S.M.E., Duke University

Lady Rosa Sabates, Instructor in Spanish
B.A., Camaguey College for Teachers; Doctor of Pedagogy, University of Havana; M.A., University of North Carolina at Chapel Hill

Paul Antonius Saman, Associate Professor of French
Ph.D., Charles University

Joseph Francis Schell, Chairman, Department of Mathematics, and Professor of Mathematics
B.S., University of Dayton; M.A., Ph.D., Indiana University

Mozelle Spainhour Scherger, Documents and Serials Librarian and Assistant Professor
B.S., Appalachian State Teachers College; B.S.L.S., University of North Carolina at Chapel Hill

Norman Willard Schul, Chairman, Division of Social and Behavioral Sciences, Chairman, Department of Geography and Geology, and Associate Professor of Geography
B.S., M.A., Miami University; Ph.D., Syracuse University

Duane Philip Schultz, Associate Professor of Psychology
B.A., Johns Hopkins University; M.A., Syracuse University; Ph.D., American University

Morton Shapiro, Assistant Professor of English
A.B., M.A., University of Miami; Ph.D., University of Alabama

Ronald Bernard Simono, Assistant Professor of Psychology
B.S., St. Norbert College; M.S., Ph.D., University of Wisconsin

Joseph Austin Slechta, Professor of French
B.A., New York University; M.A., Ph.D., Tulane University

Alfred Glazé Smith, III, Instructor in Economics and Business Administration (Part-time)
B.A., Columbia University; M.A., George Washington University

Vera McGowan Smith, Assistant Professor of Nursing
R.N., Central Islip State Hospital; B.S., Seton Hall University; M.S., University of North Carolina at Chapel Hill

William Alexander Smith, Instructor in Electrical Engineering
B.S., M.S., Clemson College

David Sohn, Associate Professor of Psychology
B.A., Brooklyn College; Ph.D., University of Texas

George Clinton Sornberger, Instructor in Mathematics
B.S., Holy Cross College; M.S., Catholic University

Frances L. Starner, Associate Professor of Political Science
B.A., Colorado State College of Education; M.A., University of California at Los Angeles; Ph.D., University of California at Berkeley

Mary Douglas Stauffer, Instructor in English
B.A., Winthrop College; M.A., University of North Carolina at Chapel Hill

Martha Lawrence Stewart, Assistant Professor of Mathematics
A.B., Winthrop College; A.M., Duke University

Frances Lovenia Summerville, Catalogue Librarian and Instructor
B.A., St. Andrews Presbyterian College; M.L.S., Peabody College

Louis Alfred Trosch, Lecturer in Economics and Business Administration
B.A., Bethany College; M.A., George Washington University; J. D., West Virginia University

Robert Whitney Tucker, Lecturer in German
A.B., Ph.D., Cornell University

Elbert Daymond Turner, Jr., Chairman, Department of Foreign Languages, and Professor of Spanish
B.A., Davidson College; M.A., Ph.D., University of North Carolina at Chapel Hill

Thomas Coke Turner, Assistant Professor of Accounting
B.S., Furman University; M.B.A., University of North Carolina at Chapel Hill; C.P.A.

Lazaros Anastasios Varnas, Associate Professor of English
Certificate, British Institute; M.A., Ph.D., University of Pennsylvania

Robert Everett Vermillion, Assistant Professor of Physics
A.B., King College; M.S., Ph.D., Vanderbilt University

Robert Marsden Wallace, Chairman, Department of English, and Professor of English
A.B., Wofford College; A.M., Ph.D., University of North Carolina at Chapel Hill

Samuel Dibble Watson, Jr., Instructor in English
B.A., Wofford College; M.A., University of Virginia

Burton Howard Wayne, Associate Professor of Electrical Engineering
B.S., Michigan State College; M.S., Ph.D., Michigan State University

Frank Rutledge Whittacre, Assistant Professor of Education
B.S., State Teachers College, Indiana, Pennsylvania; M.A., Ed.D., Western Reserve University

Robert George Williams, Assistant Professor of Economics and Business Administration
B.A., Ohio Wesleyan University; M.B.A., J.D., Indiana University

Sadie Hamrick Williamson, Instructor in Economics and Business Administration (Part-time)
A.B., The Woman's College of the University of North Carolina; M.S., University of North Carolina at Chapel Hill

Edyth Farnham Winningham, Professor of Political Science, Emeritus
A.B., University of North Dakota; A.M., University of North Carolina at Chapel Hill

Loy Hahn Witherspoon, Chairman, Department of Philosophy and Religion, and Associate Professor of Philosophy and Religion
A.B., B.D., Duke University; Ph.D., Boston University

Harvey Lewis Woodruff, Instructor in Music (Part-time)
B.S., New York University; M.A., Columbia University

Hazel Drye Wright, Instructor in Mathematics
B.S., Appalachian State Teachers College; M.A., Wake Forest College

Esther Emmy Wruck, Instructor in German
A.B., Hope College; A.M., University of Rochester

William David Wubben, Professor of Economics and Business Administration
B.Ph., M.B.A., University of Chicago; Ph.D., The Claremont Graduate School

Catherine Sue Yielding, Instructor in History
B.A., M.A., Emory University

A

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